

THE MARCH OF LIFE

by

ELIZABETH H. DEWART

WITH AN INTRODUCTION BY
DR. ELWOOD WORCESTER

‘I commend this book as an interesting and original attempt to meet a difficult problem.’ — *Bishop Lawrence.*

‘This religious philosophy is broad in its conception and appealing in its exposition. I hope this book may be read by all those whose philosophy of life needs a wholesome development.’ — *Dr. Ruggles, Executive Chairman of the National Committee of Mental Hygiene.*

RICHARD C. CABOT

IN medical circles, Dr. Cabot is known as one of America's most brilliant physicians; by social workers he is regarded as the pioneer and foremost figure in the new science of medical social service; and among the general public he is celebrated as the author of 'What Men Live By,' one of the most successful and illuminating of American books on the art of life; and of other notable works.

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PRESCRIPTIONS

A Collection of Extracts from 'What Men Live By,' compiled by Edith Motter Lamb.

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BY
ELIZABETH H. DEWART

WITH AN INTRODUCTION BY
ELWOOD WORCESTER, D.D.



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A LITTLE philosophy inclineth a man's mind to atheism; but depth in philosophy bringeth men's minds about to religion. For while the mind of man looketh upon second causes scattered, it may rest in them to go no further; but when it beholdeth the chain of them, confederate and linked together, it must needs fly to Providence and Deity.

FRANCIS BACON

IN AN AGE OF SCIENCE

THE little world of olden days is gone,
A thousand universes come to light:
The eyes of science penetrate the night
And bring good tidings of eternal dawn;
There is no night, they find, there is no death,
But life begetting ever fuller life;
They look still deeper, and amid the strife
They note pervading harmony. The breath
Of morning sweeps the wastes of earth,
And we, who talked of age, become as gods,
Scanning the spheres, discoursing of the birth
Of countless suns. No longer human clods,
We stand alert and speak direct to Him
Who hides no more behind dumb seraphim.

THOMAS CURTIS CLARK

PREFACE

THE work which has resulted in the publication of this little volume was begun in a bewildered attempt to meet the responsibilities of parenthood and the leadership of boys outside the home.

Into it has gone, imperfect though it is, the evolution of a personal conviction of the reality of Spirit and its guidance in the Life of this world.

To all those who have helped in this task, over a period of twenty-five years, with their understanding, patience, and inspiration — especially those versed in natural science, psychology, and philosophy — I dedicate these written words.

Acknowledgment is due in particular to Edwin Tenney Brewster, who is responsible for the scientific chapters of this book, and without whose unfailing confidence and encouragement over a period of years it would not have been completed.

E. H. D.

March 15, 1929

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INTRODUCTION

I HAVE seen this work of my friend Mrs. Dewart grow to maturity with much satisfaction and I have read it with deep interest. It belongs to a new *genre* of religious literature, of which, in its explorative and hospitable spirit, it is a pioneer effort and the harbinger of a new day. It is a reminder to us that the old antagonism supposed to lurk between the things of the mind and the things of the Spirit is but illusory, and that the next great step humanity will take will consist in the healing of the breach between intellect and soul and in the integration of these, the two greatest elements of our being. As long as this dissociation continues, Man will continue to be imperfect and unhappy because his higher life will lack unity.

The method of this gifted author in her approach to the great questions of Religion and Life is inductive and descriptive. In 'The March of Life,' Mrs. Dewart exhibits a wide knowledge of contemporary science, criticism, and philosophy. Unlike most other religious writers, she appears to feel herself as much at

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home in the field of Nature as in the realm of Christian thought and tradition. Her convinced faith and her rich spiritual experience seem able to include both worlds and to gather honey from the most diverse flowers. Moreover, the substance of this book has already endured the *experimentum crucis*, inasmuch as it has been submitted, in oral form, with distinguished success, to a large group of inquirers after religious faith and knowledge.

I am therefore glad to bear my humble testimony to the excellence of this volume and to assure the reader in advance that he will derive much benefit and pleasure from the study of many fascinating phenomena and that he will experience the satisfaction we always feel when we see old and imperishable truths shining in new light.

ELWOOD WORCESTER

EMMANUEL RECTORY, BOSTON

April, 1929

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CHAPTER I

THE STORY OF THE WORLDS

It so happens that when any one of us begins to form some sort of general idea of this strange universe, what commonly impresses him more than anything else about it all is its enormous size. Most of us in these days do a certain amount of traveling, so that we come to know in not a little detail a fairly large amount of territory. At least, we can all find our way around over some considerable area. To all of us the district that we know seems distinctly a big place.

Yet, if we look it up on the atlas, we find it to be very small. The home region that we know intimately does not appear on the State map. On the chart of the continent, the State itself is only a fleck of color. Even the continent is but a small part of the earth.

Think of the sea, the very symbol of vastness and unfathomable depth, that would swallow

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up all the land and hardly raise its level! Think of how small a mountain takes us all day to climb! Yet the depth of the ocean, compared to the size of the earth, is as but the thickness of the varnish on our dinner-table; while, for all its great ranges and huge peaks, the world is, relatively, as smooth and round as a billiard ball.

This planet earth is itself only a speck in the immensity of the heavens. The planet Jupiter is more than a thousand times as large. The sun is a thousand times as large as Jupiter. In fact, the sun is so large that if one could put the earth in its center, with the moon revolving about it at its proper distance, not only would the moon also be inside the sun; it would not be much more than halfway out from the center to the surface. The dark spots on the sun's face, that are hardly large enough to be seen through smoked glass, are the mouths of such caverns as would swallow up the earth and the moon together as a pumpkin might drop into a well. The disk itself is everywhere twice as hot as any electric furnace on earth and twice as bright as the little brightest spot in an arc light. Each single square yard of its surface gives off continuously enough power to run at top speed,

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day and night, two thousand large automobiles.

Yet this vast sun that warms our bodies and tans our skins across ninety million miles of space is only an average sort of star. Some of the rest are a good deal hotter, thousands of times as bright, and some millions of times as large. Three hundred million of these suns are visible in the great Mount Wilson telescope. Nobody can more than guess what a still larger glass might reveal. Moreover, we know that the dark, cold stars, which of course cannot be seen at all, are probably at least as many as the bright ones; while, for all we shall ever find out, each bright star may have, like our own sun, a train of planets circling round it, at least one of which may be inhabited like our earth.

Words fail one in trying to describe a universe in which near neighbors among the fixed stars are as much farther apart than are the earth and the moon as a thousand miles is longer than an inch, and where, for each star that we see in the sky, there are at least fifty thousand more that are invisible. One can only fall back on a single fact which gives to many minds more than any words a true picture of the vastness of creation.

If, on a clear night, one looks into the north-

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ern heavens toward the west of the Pole and somewhere midway between the great stars Vega and Arcturus, he may, if the seeing is uncommonly good, be just able to make out a very faint object in the constellation Hercules. It is too inconspicuous to have a name, and is known only by its number thirteen in Messier's star catalogue. It is so distant that the light from it, traveling on its path to the earth, has occupied on its way the time of the whole of recorded human history.

Yet this little fleck of light, so minute that it cannot be picked out in the sky without a map nor seen at all through the thinnest cloud, is made up of more than fifty thousand great suns, most of them five hundred times brighter than our own sun, and each so far from its nearest neighbors that its light takes more than a year to cross the space between.

This is the size of the universe in which we find ourselves; this is the scale in which our earthly tabernacle is built; and this is the sort of world which science strives to understand, and which each one of us must needs try in some wise to explain if he is to live his life out sanely on this little dust fleck on which it is given him to be born.

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The scale of the universe is, then, the particular quality which commonly strikes one soonest. After that, one is impressed with its orderliness.

This orderliness is not so easy to see. One really grasps it only after half a lifetime of close study of some portion, and many a long year of contemplation of the whole. Much of it, nevertheless, is as obvious as the size. We know that the same gravitational pull that brings the child's ball to the floor also swings the planets in their courses, and keeps spinning around one another every three days the two vast suns which are the star Algol. We know, too, that the light of distant stars, that is ten and twenty and a hundred years reaching us, is still the same light that shines from our blast furnaces and electric lamps. Its colors reveal the same hydrogen and helium and calcium and iron that we on the earth buy at the shops or pick up in the street. There are bigger things in the universe than the earth and there are smaller. There are places where iron boils away into vapor, and there are places where air freezes to a solid block. There are dimensions that have to be measured in thousandths of an inch; and there are spaces where a million miles are too

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small to notice. But there are no regions in the universe, so far as science has yet seen, where things are really different from what they are right in our own back yards. One of the matters concerning which science is surest is that, if we could be transported to the confines of the universe and set on the most distant star, our earthly geometry and arithmetic would still be sound mathematics, our physics and our chemistry would still be good science, and everything there would be essentially the same as it is here. The universe is everywhere a universe, one kind of thing.

Men have not always believed this. The time has been — and that not so long ago, a mere three centuries — when, at the coming of an eclipse, people rang the church bells and fired cannon to frighten off the monster that was eating up the sun. For men of that day, the universe was lawless, ruled only by caprice. To-day, even the children know that eclipses are all figured out years before, and set down in the almanac. When the time of the eclipse arrives, instead of ringing the church bells, we all stand watch in hand. And just as the minute hand settles on the mark, the great shadow comes sweeping across the land, to last

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the predicted number of seconds, and then to depart. The motions of the heavenly bodies are more uniform and orderly, more surely to be made out in advance, than those of any human machine or any human will. We live in a universe of order and law.

All that is distinctive in our modern civilization is built upon this idea. We moderns look upon nature as one vast machine. Its size is beyond any conception. Its age is beyond all imagination. Its complexity is such that we think a man's life well spent if he has been able to unravel the secret of some small piece of it. But all our modern science, and most of our modern industry, is founded on the great doctrine of the Uniformity of Nature, on the belief that the whole body of the universe fitly framed and knit together through that which every part supplieth, according to the working in due measure of each several part, runneth like a well-built machine in the hands of a competent engineer.

This conception of the world is one of the three or four most important gifts of science to our modern day. Now this order and unity can hardly have come of itself. Unity and order, in our human experience, never do come

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of themselves, but only disorder and confusion. When things hang together, when machines run, some intelligence has made them so.

Beyond this, in the light of nature, the wisest men see only dimly. Yet, if this little handful of earth on which we live is the same substance, the same hydrogen and carbon and iron and the rest, as Capella and Arcturus, as we know it is, it is hard to believe that our human minds are not likewise of the same general sort as whatever other minds there may be elsewhere in this very ample universe. We see about us intelligence of lower order than our own, stupid human beings, dogs, horses, mud turtles, clams — all like us but inferior. It were strange, indeed, if the series does not run the other way.

That which we know concerning the present state of the heavens is, on the whole, the most certain of all our human knowledge. The routine work of an astronomer is timed to the twentieth of a second. He regularly measures angles that are less than the thousandth part of that between the two sides of a hair at the ordinary reading distance. When he buys even a little telescope, its maker must guarantee that the lens does not depart from the per-

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fect curve by more than one fifth the length of a single wave of sodium light of which there are fifty thousand to the inch.

Men who do their work with this degree of accuracy do not make mistakes. When they tell us that the diameter of the earth is 7918 miles, and its distance from the sun 93,000,000, we may be perfectly sure that these numbers should not be 7928 or 92,000,000. And when the Nautical Almanac tells us, a year in advance of the event, that the moon will rise or the sun set or the eclipse begin at precisely such and such an instant, if the prophecy does not come true a good deal nearer on time than most of us can read a watch, then we know that the watch is wrong. If, therefore, our general description of the stars and planets is not correct, then no portion of our knowledge of anything is reliable.

When, however, from the present condition of the universe we turn to its past history, the case is different. Here we depend only in part on facts. The rest is reasoning and speculation. It is, therefore, subject to all the errors of human logic, so that what seems to-day most probable may to-morrow prove to be quite unlikely. Even less certain than our inter-

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pretation of the past must always be our surmise of the future.

Nevertheless, there are certain matters concerning the past history of the universe which are now fairly certain, as certain, probably, as most of the interpretations of human history.

First of all, then, the heavens as we know them, ancient as they are, show clear signs of a beginning in time.

We commonly think of 'our' universe — that is to say, everything inside the Milky Way — as infinite in extent, and so far as we know spherical in form. As a matter of fact, it is neither of these. The starry heavens above us actually have the shape of a huge grindstone, some eight or ten times as far across as it is thick. If there be other star systems beyond our own, as there pretty certainly are, our star system extends to known though unmeasured distance, and there stops. Beyond it lie others like it; and beyond these, others still.

We of the solar system seem to be located not far from halfway off center from the general mass of galaxy. When, therefore, we look out at the stars, we see nine tenths of them in the narrow band around the sky which we call the Milky Way. This is, of course, the great

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grindstone seen edgewise from somewhere near its middle region. Most of the stars there seem small because they are very far away. But when we turn at right angles to the Milky Way, we are looking out the thin way of the grindstone where the stars are few, but bright because they are near. Beyond them lies empty space; and beyond this the great spiral nebulae that are still other galaxies.

Our own solar system has not always been where it is now. In fact, we are moving off, about twenty times faster than a rifle bullet, in the general direction of the great blue star Vega. If we hold this course, in many million years we shall be away on the outside of the galaxy with all the stars on one side of us, and nothing at all on the other. Many million years ago, our sun and all its planets were probably as far away on the other side.

Within this celestial grindstone there is curiously little organization. To be sure, there are some five or six thousand 'binary' stars, each a pair of suns which revolve around one another as the moon revolves around the earth, separated by only about the hundred thousandth part of the distance which commonly divides a single star from its nearest

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neighbors. Sometimes, also, two such binary pairs have doubled up with another like pair, so that, while each star spins rapidly around its partner, each pair of partners turns slowly around the other pair. One of the faint stars which form the equilateral triangle with Vega is a quadruple system of this sort.

There are also more than a hundred star clusters, like the Pleiades, the Hyades, or the great cluster in Hercules, in which a few hundred or many thousand stars, all of a good deal the same character and size, and all comparatively near together, are moving along together side by side through space, like a flock of birds across the sky. Besides these, there are two great streams that include most of the nearer stars, which are flowing through one another without hitting, as a fountain of water might throw its drops upward through falling rain.

Nevertheless, in spite of these groups, there seems to be on the whole almost no plan or uniformity or system in the movements of the stars. They fly hither and thither, like bees in a swarm or like the motes in a sunbeam, some standing nearly still, and some moving four hundred times faster than a rifle bullet. Sometimes, apparently, they collide; but on the

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whole they behave pretty much as if each one were all alone in the universe. Even the great clusters seem to have little influence on their neighbors. Most of the billion or more stars which probably exist appear to be simply flying in straight lines at random. There is no special center about which they revolve. There is no larger body that controls them as our sun rules its planets.

This being the case, it is clear that the universe of stars, as we know it, can by no means have been in existence 'for always and always.' For if it had been thus stirring itself up during unlimited time, it must have long ago become thoroughly mixed into some sort of uniform mass. The general body should have become a globe. There could hardly be separate star streams and clusters; and the middle of the celestial grindstone should be the thickest set part of all, with the biggest stars collected there. The fact that things are as they are proves that they have not always been so. In other words, our universe is still so new that it has not yet had time to put itself in order.

Moreover, we still see in the sky single stars at all stages of growth. Just as in a forest there are, side by side, little seedlings and full-grown

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trees, saplings and fallen trunks, so there are in the heavens stars that are hot and bright and apparently new-made, and stars that are cold and dim and apparently burned-out.

Furthermore, we know directly that stars do change. No longer ago than June, 1918, a certain star near Altair in the constellation Aquila, that is known to have been shining faintly and steadily at least since 1888, suddenly flared up. In a single night it jumped, from being too dim to be seen at all with the unaided eye, to a brightness surpassed by only a half-dozen out of all the heavenly bodies. By the second night it had become the brightest of all the stars, sixty-five times brighter than it had been less than a week before. Then it began to fade. Within a month it almost disappeared from view, and since then has been visible only on very clear nights.

The same thing has happened before. A dim star which flared up in 1901 shone nearly as bright as that of 1918. It was, however, so enormously distant that it was really some eight thousand times as bright as our sun.

Whatever happened to it occurred about the time of the first English settlements in North America; the light spent three centuries in

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getting here. The 'new' star of 1572, which turned to astronomy the great Tycho Brahe, was so bright that it could be seen in the daytime. In those pre-scientific times many people thought it might be the Star of Bethlehem come back to earth.

In other words, not only does our universe, as we now know it, show unmistakable evidence of a beginning in time; it shows, in addition, actual changes on a vast scale before our very eyes. In no sense, then, is it either ready-made or finished. On the contrary, it is still young and growing. What, therefore, it is to-day can be understood completely only in the light of what it has been at some other time, when it was, in some respects, different from what it is now. It has, in short, a history.

There are few intelligent persons among us who do not know that the present state of the heavenly bodies is not their condition from infinite time, but the result of a process of evolution. Every one, of course, nowadays understands that it is the business of science to 'explain' nature. That is to say, what scientific men are trying for, more than anything else, is to be able to say, when confronted with any fact, that just such and such is the reason why

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this fact is as it is instead of being something different. Why is the setting sun red instead of blue? Why is the sky blue instead of red? Why does the wind nearly always blow from the east during a storm and from the west during clear weather? Why, when one plants a pumpkin seed, is not the plant which grows from it an apple tree? Science, in brief, is a set of answers to the question, Why?

The early astronomers of modern Europe, from Copernicus, who died in 1543, down, let us say, to a little beyond Newton's time, not far from 1700, were extraordinarily successful in finding reasons for the more obvious aspects of the heavens. They were able to prove that the principle of Universal Gravitation and the three laws of motion which Sir Isaac set forth in the 'Principia,' explain fully virtually all the observed movements of comets, planets, and moons; and made it possible to predict accurately the positions of such heavenly bodies years in advance. The fact that the predicted event always came off proved the truth of the Newtonian mechanics. Before the end of the seventeenth century, therefore, problems of this nature had been pretty completely solved. As fast as new facts were discovered, they fitted

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nicely into the explanations already reached.

It must, however, be emphasized that all these early answers to the questions, Why? were of what we may term a 'mechanical' sort; the heavenly bodies are in movement at such and such speeds; their motions are helped or hindered in such and such ways; therefore they have reached the places where we see them; they cannot be otherwise.

Other men of science, meanwhile, have been answering like questions in a like way. The sun is red and the sky blue because of the constitution of the atmosphere and the nature of light. If there is dust in the air of the planet, then Venus also has red sunsets and a blue sky. If Venus rotates like the earth, then it rains there with an east wind. Any other planet attendant upon any other star, though it be on the farthestmost bounds of the galaxy, and though it were a million years ago, if it fulfilled the same conditions would experience the same results. Such reasons for things have no time element in them.

About the middle of the eighteenth century, however, not far from the time when Benjamin Franklin was flying his famous kite, it occurred at about the same time to a number of different

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persons that there are certain facts concerning the heavenly bodies for which no 'mechanical' explanation will suffice. Newton had proved fully just why the planets all travel in ellipses instead of in circles. But neither he, nor any one else of his time, could explain why all these elliptical orbits should lie so nearly in the same plane as they do, instead of being set at all angles as the orbits of the comets are. Neither could they at all explain why all the planets go round the sun in the same direction, and why nearly all of them rotate in the same direction as they revolve.

There is absolutely no purely mechanical reason, then known or since discovered, why these and other facts should be as they actually are. The chance against their being so by any happy accident is more than four or five million to one. Some few people, to be sure, there have been who have maintained that 'chance' alone might account for this much of nature; but no one has taken them seriously who knows much about either the complexity of facts or the algebra of chance.

To various persons, then, noticeably to the great divine Swedenborg, and to the still greater philosopher Kant, about the year 1750,

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it became evident that if no mechanical theory of the heavenly bodies will fully answer the Why? of them, then the explanation must lie in their past history. They are what they are now because of what they have been in their own actual past, not because everything about them must of necessity be so ordered at all other places and times.

This is what we mean by an 'evolutionary' as distinguished from a 'mechanical' explanation of nature. To the present condition of the heavenly bodies, the great scientific doctrine of evolution was first applied in any rigid and scientific form.

The philosopher Kant did this not far from 1750. He was, therefore, in a very real sense the first scientific evolutionist. Naturally, his original theory has been a good deal modified and enlarged in the century of scientific progress that has followed him. His basal idea, nevertheless, remains, and we believe to-day that the sun itself, and its train of planets, and our earth as well, have all had a long and complicated history, beginning young and growing old like pretty much everything else in this strange universe.

This, then, is what we mean by 'evolu-

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tion.' Must we not believe that a process that began perhaps a thousand million years ago, and has gone steadily forward to the state where things are now, must have been planned from the beginning?

It has already been pointed out that the doctrine of evolution, which is one of the corner-stones of modern science, although it goes back to the ancient Greeks, and even beyond them to the still more ancient peoples who gave us the Biblical account of creation, first took on a rigidly scientific form as an attempt to account for the present state of our own sun and of the train of planets of which our earth is one.

It happens, then, that the particular field of human interest in which the principle of evolution was first accepted was the knowledge of the vast age of the earth and of the slow process by which it has reached its present state.

The later Greeks grasped the idea that the world cannot always have been what it is now. The opinion grew and strengthened through the seventeenth and eighteenth centuries. But not until about 1830, a little less than a century ago, did the scientific world finally come to the sure proof that our present-day earth, with its

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oceans and mountains and continents, is but a momentary phase of a history that is so inconceivably long that the mind of man can no more grasp its extent in time than it can grasp the extent in space of the unmeasured stretches of the sky.

We know that this universe in which we find ourselves is vast in size and vast in age. We know also that the starry heavens above us and the earth under our feet have alike reached their present state by a long, slow evolution. This is among the surest items of all our modern knowledge. No man who does not grasp its meaning can altogether guide himself aright through our modern world. Whatever we may think concerning that which directs this material universe, here are facts concerning the universe itself which we must face.

When, now, we turn from the past history of the earth and those events that have made it what it is now, and consider its present constitution, the aspect which is likely to strike one most forcibly is the strange mixture of simplicity and complication in it.

There are fewer than a hundred different 'elements' anywhere, and at least half these are so uncommon that for practical purposes

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they might as well not exist at all. Half the earth's crust, with the water and the air, and all living things thrown in for good measure — half, in short, of everything that any human eye has ever seen — is made of oxygen. Half the remainder is silicon; so that these two elements together form three fourths of all that there is to see and touch. If to these, we add aluminum, iron, calcium, magnesium, potassium, and sodium, something like ninety-nine per cent of the material universe is accounted for. Fifteen elements form everything that most mortals ever know anything about.

Yet how enormously complex and different are the substances that arise from these constituents! The various rocks and ores and minerals that are dug out of the earth and either used practically or exhibited as curiosities number some three thousand. Think of the countless aniline dyes that nowadays color most of our clothing, and all the new synthetic drugs, and the nitrogen explosives, and all the essential oils that give the flavors to fruits and vegetables, the odors of flowers and various other things not so agreeable. All these are related chemical substances built up by nature or art out of only four or five

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separate elements. It has been calculated — one must not take the detail too literally — that, if all the known and all the theoretically possible carbon compounds were merely catalogued, one line of print to each different substance, and the catalogues stored in libraries set as near together as large public buildings ought to be, it would require eleven planets like the earth to hold the record. Such is the inconceivable complexity of nature.

And yet how everything works together to rational ends. We have more different chemicals in our bodies than any drug-store carries in stock, which we use up and renew, sometimes several times a day. Our lives, each instant, hang on our managing rightly; for even so innocent a substance as the sugar in the blood stream, run up beyond about two ordinary lumps, promptly brings on coma and then death. And yet, without sugar in the blood, one would die almost as quickly as with too much. But how rarely, left to nature, do we fail to take in the right amounts and the right kind of foods, and then to manufacture out of them all the thousand different substances of our bodies, when and where we need them and in the right amounts.

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Nor is the earth in this in any wise different from ourselves. Half the known earth is oxygen, all except that in the air in combination with other elements. Half of one per cent of the known earth is hydrogen. And oxygen and hydrogen together form water. And water, with the free oxygen of the air, is essential to life.

But suppose there had been one per cent less oxygen at any time in all the history of life on earth. Then it would all have gone into combination and left nothing over for the air. Or suppose there had ever been on earth an equivalent extra quantity of any single one of forty or fifty elements, or any combination of these, that should have tied up all the oxygen and left none over for the air, all life, if it ever started, must forthwith have stopped. But a little more oxygen or a little less of other things to bind it would have made another set of troubles the other way.

Carbon forms only two tenths of one per cent of the earth's crust, less even than this of the earth as a whole, and only about the hundredth of one per cent of the air. Yet we living things are all of us simply carbon compounds, made mostly of water and the carbon

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dioxide that we have taken out of the atmosphere. How minute an alteration in the chemical balance of the world would have put that hundredth of one per cent of carbon into the rocks, where most of it actually is, and have left none over to make life possible!

In short, for all chemistry can see, we might have had an atmosphere of hydrochloric acid or ammonia, with no water at all; or we might have had an ocean of oil. There might have been any one of a thousand differences from what actually has been, any one of which would have stopped our being here at all. But none of these possible accidents have occurred for at least a hundred million years. There are at least a million chances to one against the present arrangement of things. And the present arrangement of things is the only one that anybody has been able to imagine that will make possible any kind of life whatever.

In general, when we find things coming right with only one chance in the million on that side, it proves always to be because somebody looked ahead and planned things that way.

CHAPTER II

OUR PLANET EARTH

THERE is not a little reason for thinking that our earth began its separate existence much smaller than it is now, most likely with about half its present diameter, and therefore about the size of the planet Mars. At any rate, it is still growing slowly as the shooting stars fall in, only grains of dust, to be sure, but ten or twenty millions of them every day.

Of the history of the little earth that was, and of the long ages during which it was enlarging to its present size, we know absolutely nothing in detail. Whatever may have happened, the story is lost forever, buried under a thousand miles of rock. Our earliest direct knowledge goes back only to a period when our earth was substantially what it is now, had reached its present size, had about its present quantity of air and water, and had apparently been the abode of living creatures for a very much longer stretch of time than has elapsed since. *

The earliest glimpse we have of our own continent is a patch of very ancient land some-

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what larger than Australia. It lay where Labrador now is, included Hudson Bay — which wasn't there then — and extended west and north almost to the border of Alaska. It included Greenland and Iceland, and came south to about the region of the Great Lakes. Nobody knows how much of the North Atlantic was also dry land. New England and the Adirondacks were offshore islands. There was another large district eastward of where the southern Appalachians now are, in Virginia, North Carolina, and Tennessee, that may have joined Europe, while a long string of little islands from northern Alaska to Mexico marked the place where what was to become the Rocky Mountains first began to show itself above the ancient sea. Northern Europe, also, was above water at the same time, along with northern China, parts of India, and no doubt many other portions of the earth that have not yet been fully explored. Apparently it was a rough country, standing high above the sea. It may have been as lofty as the Himalayas. At any rate, all through New England, in northern New York State, throughout eastern Canada even to the Arctic Islands beyond Labrador, the rocks of the level country, in-

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stead of lying flat, as rocks commonly do in a plain, are twisted and broken, stood up on edge, cut through with lava flows, precisely as they are in the most rugged parts of the great mountains of the world. Every little New England hill, every upland pasture, has the rock structure of the Andes or the Alps.

Thereupon, the rain descended and floods came and the winds blew, just as they do to-day, and they washed away those ancient mountains, and piled gravel and sand and mud on the floor of the ancient sea, till they formed beds that were fifteen and twenty thousand feet thick, precisely as our own modern seas are being filled by the waste of our own lands.

It must have taken a vast while. We see each year, during the spring floods, that all the streams, big and little, are turbid with the fine mud which they are carrying away to the ocean. We see also, as soon as we stop to think of the matter at all, that this fine mud is nothing more or less than a small portion of the surface soil, which is forever being washed away, and forever renewing itself by the decay of the rocks underneath.

Yet, when we watch the decay of any particular rock, whether it be ledge on the hillside

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or some foundation stone in a dwelling, we see how very slow this process is. The hewn stone does, indeed, change color slightly in a year; but that is about all. A very old building shows some signs of weathering. A soft place may even be visibly pitted. One breaks a natural rock, and finds that decay has gone in for a fraction of an inch, so that the surface is not quite like the general mass. But how little, in one human lifetime, seems to be happening to most rocks! Often a layer of rocks, the thickness of a sheet of paper, is about as much as becomes soil in years. The stone monuments of Egypt have stood for thirty centuries.

And yet we know that the entire shape of the land has been carved out of the solid rock, by just this slow weathering into soil and the washing away of the finer stuff by the streams. We know that, everywhere on earth, even the tops of the mountains fail to reach the former level, and that all the great valleys between the ranges, and all the smaller ravines among the peaks, were formed by the streams themselves as they have washed away the soil that crept downhill to their banks. The Great Gulf on Mount Washington, the Gorge of Niagara, the Grand Canyon of the Colorado, are but the

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hollows that are left behind when the everlasting hills have gone downstream in the spring floods. It takes about one geological period to wear a high mountain down flat.

In the course of time, therefore, this ancient land that was the earliest known part of North America was pounded by the sea waves into sand and gravel, and weathered into mud by sun and frost and vegetation, until the entire country had been worn down from mountain to plain, and stood not very much above sea level.

Meanwhile, the upper crust of the globe had been see-sawing up and down, as it is continually doing. On the whole, however, North America swung rather up than down, so that the land gained on the sea. This, naturally, in the course of ages, brought up the old gravel banks and sand bars and mud flats that had formed offshore, and added these to the growing continent. All this stuff in the mean time had hardened into solid rock; the pebble beaches into pudding-stones, the sand bars into sandstones, and the mud into slates and shales. Mixed with these were shells and skeletons of sea creatures solidified into limestones and marbles.

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These are the bedded rocks which we find to-day from the interior of New York State southward into Kentucky and westward beyond the Mississippi into Texas. There the ancient sea bottoms still are — sandstones that were once beaches and bars; mudstones with ripple marks and raindrop prints between the layers; heaps of ancient shells, that are now good building stone; whole coral reefs with branching corals, bedded in limestone mud, that may be seen to-day standing in the cliffs just as they grew, but high in the air now and a thousand miles from salt water. One still finds in these rocks the footprints of land creatures which came down on the mud flats at low tide, and left their bones preserved in the solid rocks when they failed to return.

Meanwhile the Rocky Mountain district was becoming dry land, though for a long time what is now the Gulf of Mexico ran clear through to the Arctic Sea. Inevitably the same thing happened right over again to the newer and larger North America as to the earlier and smaller one. Once more the rains descended and the spring freshets came and the storms blew and washed that land away into the ocean. And once again there formed still newer

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deposits on the sea floor, which in their turn hardened into rocks.

When these younger rocks, in their turn, came up out of the water to the light of day, they added to North America the great western plains between the Mississippi and the Rockies, from northern Texas through Nebraska and the Dakotas into the wheat country of Canada, clear to the present northern boundary of the continent, and probably beyond to what is now shallow ocean, but was once dry land. Much of the Rocky Mountain district is built of the rocks that formed on the floor of the ancient Gulf of Mexico when it cut North America in two.

Again the same thing happened and that country wore down. The wash from this filled certain great fresh-water lakes in the Far West. In addition it built all the flat country that borders North America between the mountains and the sea, from northern New Jersey and Long Island, down through the Carolinas and Georgia, up the Mississippi Valley as far as southern Illinois, and all the southeastern plain of Texas, into Mexico.

This was the last addition to the continent. But the same process is going on. The whole country is wearing down and being carried out

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to sea. Still on the ocean floors just off the coast are the continental shelves, where the new rocks are being made that will some day be added to a still larger North America.

The other continents have had substantially the same history. Sometimes they have risen a little and moved their coasts outward to where is now the shallow sea. Sometimes they have sunk a little and let the ocean in over the lowlands. Sometimes they have tilted down on one side and up on the other, or warped into great troughs that became such bodies of water as the Baltic and the Mediterranean. At times they wrinkled up into great mountain ranges that wore down again to flat country. In general, Europe is very like the north-eastern part of North America.

In fact, at various times in the past, Europe and North America have been joined by some sort of land bridge, apparently by way of Iceland and Greenland. For over and over again in the history of life on the earth the animals and plants, now fossil, have been so much alike on the two sides of the North Atlantic, and changed so identically and simultaneously on both sides, that the two continents must have been one land.

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Indeed, there is not a little reason for thinking that North and South America were originally one with Europe and Africa, with eastern Brazil tucked into the Gulf of Guinea, Greenland and Norway in contact, and what was to become Newfoundland one of the prospective British Isles. If this was actually the fact, the break was rather recent as geological time goes, apparently no longer ago than the Age of Reptiles, and the two land masses have since been slowly drifting apart, the light rocks of the earth's crust floating on the heavier interior like ice in water. Very careful determinations of longitude are now being made from time to time, to see if this continental drift is still going on, and which way North America is now floating.

Be this as it may, the earth in the past has in general had more uniform climate than now, with warm weather and abundant vegetation clear to the Poles, and with conditions of life and animals and plants on the whole more alike everywhere than now, and better land connections between different regions. This Age of Man in which we find ourselves has been a remarkable, almost a unique time in the history of our earth in many other ways than

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the especially important fact that we live in it. Nevertheless, taking the earth as a whole, things have been going on, very much as they do to-day, from the earliest times of which there is any record.

So it has gone on from the earliest times of which there is any record, and so it continues to-day, 'with no trace of a beginning and no prospect of an end.' The land rises slowly out of the sea. Sometimes, when it fairly jumps, the rate can be measured — one foot, two feet in a century. Then it wears down — an inch or two in a hundred years — until mountain peaks have become plains. It has taken seven thousand years for Niagara Falls to cut its present gorge, if it has held to the four feet a year that it has made since it was first mapped. But it is now cutting much faster than of old — and the Niagara Gorge is one of the newest things on this earth. Some of the larger valleys of the Alps, deepening at the present rate, have taken two and three million years in the process. But the Alps are new mountains. They were sea floor when the first birds flew over them.

The really old things are the rocks. The Nile is burying the monuments of ancient

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Egypt under its mud, two or three inches each hundred years. Judge, then, how slowly does the dirt settle out of the clear sea, where the span of a long human life will hardly account for the thickness of a roofing slate. But there are layers of clay slate a thousand feet thick, with other rock layers above them and below, from the base of lofty mountains to the top. Yet the time it took to build these is but as a day in the long history of the earth.

The limestones, especially the chalks, form even more slowly than the slates. The skeletons of microscopic sea creatures sift down to the ocean floor a fiftieth of an inch a year. Yet they have built the white chalk cliffs of Dover where the beds are two and three hundred feet through. There is a place in Mexico where layers of limestone, largely chalk, are piled more than two miles thick. Yet even this did not occupy a hundredth part of the known history of the world.

It took five million years just to make the coal. Ten million human generations would hardly span the gap between the times when our race first appeared and the earliest known fossil-bearing rocks. Yet even this, in the life of the world, corresponds, let us say, to the

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decade between thirty and forty of a man's days. So vast a time has it required to make the planet earth ready for our use.

CHAPTER III

THE UNFOLDING OF LIFE

THERE is one fact in particular concerning this ancient world of ours which does not always receive the attention it deserves.

When we go down into a mine, we find that the rocks around us grow hotter and hotter, at the rate of about one degree for each fifty or sixty feet. This means that, if we ever penetrate two miles below the surface, we shall come to a place where water will boil. Ten miles down, the softer rocks are melted till they flow like water, and gush out over the surface of the earth in lava streams a score of miles long and a hundred feet thick. Still deeper in the earth, the temperature probably goes beyond a thousand degrees.

No creature such as we know can possibly live in boiling water, still less in melted rock. Two miles, at most, beneath its surface the world is dead.

On the other hand, we have only to climb some two miles into the air to find ourselves in a region where ice never melts. Only six miles above the fertile earth, the thermometer

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stands, summer and winter alike, at sixty below. A few miles up, also, the world is dead.

But this little zone, only four or five miles wide, within which life is possible, amounts in proportion to only one tenth of one per cent of the earth's radius, less than the thickness of the tissue paper round an orange. Close above lies fatal and unimaginable cold. Close beneath is heat seven times hotter than Nebuchadnezzar's furnace. A little change of conditions, a little shifting upward of the heat, a little dropping downward of the cold, would wipe out every living thing.

Yet it does not happen. It has not happened for at least ten times ten million years. We know this because the life of the world has been continuous from the beginnings of its record. It has not stopped and started again.

Meanwhile, new suns have blazed up and gone out. Our earth has passed more than once across the galaxy, through frigid places, past luminaries that are a hundred times hotter than our own. Yet never, in all the while, has the whole surface of the earth been cold enough to freeze water or hot enough to make it boil. Within a range of temperature that a man's hand can bear, the earth has remained habit-

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able for the living things that we know, in a universe where hydrogen freezes to a solid block and melted iron falls like rain.

That is another thing that could not well occur by accident.

Moreover, this life on earth, which has already outlasted some of the stars, beside whose antiquity the everlasting hills endure but for a moment, is still the great mystery of the world, the least understood thing in it.

Consider this, one of the commonplace tasks of the beginner, who at a seaside laboratory takes up the study of living things. Somebody goes fishing. Off the rocks he lands a few sea bass, an ordinary fish enough, the size of a man's hand. He keeps them alive in a pail, and by and by, one or two of them lay eggs, a thousand or two at a time, each rather smaller in size than the periods in fine print, and, unlike most eggs, so transparent that one can see through them as if they were minute glass beads.

The student sits down at a table and watches through a microscope that little colorless fleck of living jelly, in a drop of water, turn into a little living fish. It takes about forty-eight hours. At first there is nothing to be seen, any more

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than in a grain of cooked sago in a pudding, which, in fact, except for size, the egg very much resembles. Within a half-hour the change begins. The living protoplasm which, at first, spread equally over the lifeless yolk, begins to draw together at one side and to grow, still, however, without form. Moment by moment, the protoplasm increases in amount, a heap of unformed stuff which is by and by to build the house of life.

The structure, once started, comes with a rush. A faint line, the beginning of the nervous system, marks out the main axis of the body. The front end of this thickens to form the brain. A tiny bit of outer skin of the half-formed body pockets in to form the eye, while the half-formed brain buds out a stock to meet it and to become the optic nerve. Two dark points mark the place where the ear is going to be. Faint tracings outline the growing muscles. A little strand of fiber that is to be the heart first thickens, then hollows out, then flickers unsteadily, stops and starts again. Meanwhile, certain vague openings through the tissues are becoming arteries and veins. Blood forms in them. Just at the right instant the little heart begins to pump steadily,

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never again to stop as long as its life shall last.

In the mean time, the uncertain outline of the body takes on more and more clearly the form of a little fish, lying round the yolk, almost with its tail in its mouth. Finally come the last finishing touches; and immediately after, the new-made animal bursts through the egg membrane and swims away, to grow into an adult sea bass, and to lay another thousand or two eggs of its own.

Here is a sight which, to those who have seen it, seems the most marvelous thing that human eyes ever beheld. To-day there is only a formless microscopic egg. The day after to-morrow there is a complete living fish. One has only to take the time and the pains to see absolutely everything that happens in the process.

Now a fish is a very complicated affair. It has half a hundred bones in its skull alone, each accurately fitted to its neighbors. It has tens of thousands of separate muscle fibers, each wired up with a separate nerve. Each of these nerves, in its turn, is brought to its proper place on the central switchboard that we name the brain, and there joined with all sorts of shunt circuits and toll lines, so that a message that comes in from any part of the body can be

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relayed to any other. Moreover, each separate nerve fiber out of these tens of thousands is itself a complicated thing, with a central nucleus, a long trunk line, and branching connections, to say nothing of all the arrangements for keeping it fed and in repair. The outline of a single nerve cell, under the microscope, is like that of a tree against the winter sky. Yet the entire little fish that contains all these complexities is no bigger than an eighth of an inch of wire cut from the shaft of the smallest pin.

Yet this machine was built within two days. Within a year it will build a thousand or two other machines like itself and equally perfect. Meanwhile, there are more fish in the sea, many times over, than there are human beings on this earth.

Furthermore, by actual count of random samples, there are known to be in and on each acre of ordinary ground and in the air over it between one and two millions of insects alone, besides from one to two millions and a half of other creatures. Each of the insects, at least, has six legs. Each leg has half a dozen segments; and each segment is worked by at least two muscles, each controlled by a bundle of nerves. Each creature is, besides, fitted out

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with machinery for eating, breathing, and digesting, with blood, blood vessels, and a heart, with apparatus for repairing damage and replacing outworn parts. Each contains the necessary organs for making some sort of egg that will in the course of time turn into another such creature as itself, though, for all one can see, the new creature might exactly as well be something entirely different.

Think of a tiny ant, its whole body no larger than the paring of a finger nail. Yet every part and organ is there, muscle and nerve and heart, stomach, eyes, ears, the organs of smell and taste, the long, sensitive antennæ, and the wonderful little brain that is the organ of its strange intelligence. How minute is each of these, but how perfect!

Even then we have not reached the ultimate 'molecules' of which all matter is composed. Twenty-seven followed by eighteen ciphers (27,000,000,000,000,000,000) is the number of these in a thimbleful of cold air. One gets quite a wrong idea of the universe if he thinks of it as merely large. No less marvelous than the size of the whole is the minuteness of the single parts, and the accuracy with which they are fitted one to another.

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In brief, then, the world of living things is made up of an inconceivably vast number of separate creatures, each one inconceivably complicated in its structure. Yet each one of these creatures, and each one of its parts, is fitted to its place and work. The machines do go, and they do keep in repair. Moreover, each of them, whether fish or creeping thing or man, gets itself built, in two days or twenty years, out of a single microscopic fleck of colorless jelly, which, though it has no visible parts nor any discoverable members to correspond to what it is to become, is nevertheless a vastly complicated thing. Truly, of all the incomprehensible wonders of the material universe, we living beings are the most marvelous.

Some utterly unknown power moulds a speck of life into tree or creeping thing or man; something, that no one in the least understands, sees to it that each creature, big or little, has the parts and organs that it needs, and keeps them all in place and repair so long as life continues. Then, after an hour or a century, this sustaining power lets go, and the once living creature returns to the earth as it was, like any other abandoned tool.

We have already seen how an utterly un-

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known power lays hold of the microscopic fleck of jelly which is the egg of a sea bass, and moulds that plastic stuff into a mechanism that is vastly more complicated than anything made with hands. But while this life power is, indeed, utterly unknown, the fact that it does under our eyes build machines that work certainly does hint at some sort of relation to the only other power that we know which also builds machines. That is, of course, our own human intelligence.

Now, it is characteristic of intelligence or 'mind' that it does not drive straight ahead like a machine, regardless of what may be in the way; but that it adapts itself to circumstances. A runaway locomotive jumps the track, smashes through the side of the freight house, rolls over the embankment. A runaway horse takes care of himself. We all of us agree that for most purposes a motor car is a deal better than a horse. But we all know that, if we are lost in a storm, the horse may find his way home with the reins on his neck. The motor car certainly will not.

Now it so happens that so comparatively simple creatures as the sea bass, and the still simpler sea urchins and starfish, have eggs that

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are very much tougher than those of more complicated animals, and they will endure a great deal of rough handling, but still keep alive. It has, therefore, been found possible to take certain eggs at the stage when the living protoplasm first begins to divide itself, but before any parts of the new creature have been formed, and to separate this into two portions, without altogether discouraging the creative force that is moulding it.

Now, if this tiny egg were a mechanism and no more, it might conceivably do one of two things. It might simply go to smash like any human machine after being sawn in halves. Or it might go ahead and build two half structures, as, for example, a pin-making machine, fed with a broken wire, might make two half pins, with a head on one and a point on the other.

But the living egg does not do either of these. It takes each of these half portions of life-stuff, and out of each half, it fashions two complete, living, half-sized beings, which promptly grow to full size. The life-force, whatever it may be, rises to its problem, and cuts its coat according to its cloth. Human twins of the 'identical' type are formed in this way. They

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always look alike and are always of the same sex. They were designed to be one person. They became two. Clearly no machine did that of itself.

The experiment is carried even farther with the simpler eggs. The stuff meant for one young creature is divided into four portions and makes four animals. It can be divided into eight parts, and so compelled to make eight if it makes any. So it makes the eight rather than give up. At sixteen, it makes a brave try and fails. But the fact that it tries at all proves that it is something very different from any mere mechanism.

Or, take the extraordinary powers of regenerating lost parts, possessed by certain of the lower animals. A crab's leg is made to break at a certain place, where least damage will result. The lost leg promptly grows again, a perfectly good leg, complete in all its parts. Yet it may not be quite like the lost member. Not uncommonly, the five-jointed leg repeats itself with only four joints. When the claws are unlike, it is the rule that a lost big claw regenerates as a little one, while the little one on the opposite side of the body starts growing and becomes the large one. It is as

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if the crab reflected that four joints are good enough and easier to make than five, while the quickest way to get the use of a large claw is to expand the one he has left, and not to wait for the new. Of course, no crab does think such things, but something does.

When certain lizards lose their tails, they also grow new ones. Outwardly, the new members seem precisely like the old, and equally useful. But they have no vertebræ in them. Instead, they have a rod of cartilage, flexible, but without joints. Now, one might possibly imagine a machine that could grow a new tail in place of the old one. The first tail did grow in the egg, and a machine that made one might make the other. But it could not make 'something just as good,' but not the same. The ability to turn out something different that will do instead is a sign of 'mind.'

Moreover, a creature, crippled so that it cannot eat, will sometimes take down less essential parts of its body, and use the material for those which it must have. Certain flat, snail-like creatures, the planarian worms, are especially good at this. If they lose their tails, they continue to eat and digest, and soon grow new tails. But if they lose their heads, natu-

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rally they cannot eat. So they 'ungrow' their tails and parts of their bodies, and grow heads with the material. Then, as soon as they are once more able to eat, they return the borrowed stuff.

One could go on for a long time in this way citing facts to prove that, while the living body is unquestionably a living machine, its 'life' is no mechanism, but an alert and adaptable intelligence, adjusting itself to each new condition, ever ready, when shut off from one course, to take the next best. That is what 'intelligence' is — the ability to do the possible when one cannot do the obvious.

'Life,' then, whatever that may be, has a great deal to do with 'mind,' whatever that may be. It has very little, indeed, to do with what we call 'matter.' I infer that my neighbor is intelligent because he mends his broken lawnmower. I infer that he is alive because he mends his broken leg. It is clear that both the lawnmower and the leg are 'matter' and machines. Is it not equally clear that the man himself is neither?

CHAPTER IV

THE EVOLUTION OF MAN

LITTLE as we know, little as we shall probably ever find out, concerning this essential 'life' which we share with the lowest of living things, little as we know concerning the actual factors in the evolution of organic life, we do know beyond all question that the bodies of certain groups of animals have become, from age to age, more and more perfect tools for the minds which use them. Stamped indelibly in the rocks, plain for all men to read, is the record of an evolution from cruder and less efficient implements to that most marvelous of all machines, the pound or two of cells and fibers which occupies the human skull. As a violin may be compared to a river reed, so, as an instrument for intelligence, may the human brain be contrasted with the simplest living creature that we know.

Of the early history of life on this earth, we know as little, directly, as of the earth itself. This, too, is buried under miles of rock. Even when the record of living things begins to appear, the rocks that contain it have been so

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twisted and broken, so remelted and worked over, that we can now read only occasional bits of the story which they tell. We do know that there was life on the earth at the time when these layers of earth were laid down, because we do find some relics of it, but we do not know with much exactitude in what manner of creatures the will to live expressed itself.

For us, therefore, the curtain rises only on the last act of a long drama. Four of the five conventional acts have been played out when we take our seats. What went before we guess only from that small portion of the action which remains.

In other words, the earliest record of life on the earth that is at all complete, it may well be nine tenths of its history; and has already reached a condition not especially different from that which we see to-day. To be sure, there were no men on the earth. There were no four-footed beasts and no birds. Probably there were no insects. The land plants, especially the trees, were very different from our own.

But the sea creatures have changed curiously little since that day. There were about as many kinds as there have been at any time since.

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They were of pretty much the same sorts, and they were about as well equipped for getting a living. The oceans that lapped the shores of that little early North America, which is the first land that we certainly know, swarmed with sea urchins and jellyfish and corals and crabs and snails and sea lilies and the like, some of which can hardly be told from those which inhabit the seas to-day. It is by no means certain that even the true fishes were altogether wanting in this earliest known sea, since these appear in full force a short while later, as if they had had a long history in some other unknown portion of the world.

For us, then, at this late date, the history of animal evolution is largely the story of the land animals, and in particular of the great group of air-breathing, backboned creatures to which we ourselves belong. This is the most interesting part of the record which the rocks contain, vague for some groups and with many lost chapters in the story, most minute and complete for others. About 1865, roughly half a century ago, the scientific world had finally accepted as proved beyond question the general truth of this account.

The fishes in the sea, which are our earliest

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relatives of whom we can be sure, had already, when we first made their acquaintance, evolved all the more fundamental structure of our own bodies. They had attained a symmetrical body with right and left halves alike, a jointed backbone with a digestive system lying along the under side, a central nervous system which swelled out at the front end to a brain, with organs of special sense set close around it. They also had pitched upon four jointed limbs as the permanent number, instead of the six or ten or scores or none at all of their rivals. Not one of these basal elements has been altered since.

The first step toward making a body that should be fitted for a civilized human being was to get it out on shore. The land is vastly more diverse and interesting and intelligence-compelling than the water. Moreover, a creature must needs breathe free air if it is to drive its bodily furnace hard enough to get any efficient work out of itself.

The first of our forbears to come up out of the water was a creature similar to the newts and salamanders of the present day, and not so very different from the toads and frogs. In fact, there are few persons who have not been

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struck with the very human appearance of an ordinary frog stretched out on its back. Detailed study shows a most remarkable likeness in muscle and bone and nervous system.

To this amphibian, then, we owe our two lungs; the double bones of our forearms that enable us to turn our hands either side up, as almost no other creature can; a heart partitioned through the middle; and the five fingers that might have been four digits or six, but have remained five ever since.

This first land ancestor of ours never got really clear of the water. He went back to it to lay his eggs, and he passed his youth as a tadpole, swimming about and breathing with gills like a fish, in memory of his fishy prototype. Later, the tadpole stage got run back into the egg. But even now, every human being of us carries in the sides of his neck the old useless gill slits that one still sees in the spring-time pollywog. Not quite useless are they even now; for we still utilize the one farthest forward to make the passage into the ear, and we still form certain of the neck glands at the inner ends of the rest.

Then came the great split in the family. Certain of our salamandrine cousins, without

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making much change in the outward form of their bodies, greatly improved their internal organs. They developed much more efficient lungs and heart, solidified their jaws and teeth, strengthened their limbs so that their bodies no longer dragged on the ground, grew hard scales in their skins, and so far suppressed the tadpole stage in their lives that even our modern sea turtles go ashore to lay their eggs. In short, the original newt-salamander became a reptile of the lizard-alligator type.

Thereon followed a riot of evolution and experiment. The primitive reptile lost its limbs and became a serpent. It fused its scales into horny plates and became a tortoise. It went back again into the sea and became a whole group of strange creatures of which not one is now left alive on the earth. Some were porpoise-like, with fins and swimming tails and paddles in place of walking limbs. One large group had 'the body of a turtle strung on a snake,' with a neck twenty feet long and a little head on the end.

There were no proper beasts in those days, and reptiles took their place. There were huge, sluggish, vegetable-eating things, that stood eighteen and twenty feet high at the shoulder,

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with legs like an elephant, and so long a neck and tail that the largest of them were sixty feet from end to end. These were the largest creatures that have ever walked the earth.

On the other hand, there were fierce, agile reptiles that took the place of our weasels and cats and preyed upon smaller animals; or, like our lions and tigers, were powerful enough to slay and devour the great herbivores, which, though they were true reptiles, grazed in herds on the level plains, and looked in size and shape and numbers, at a sufficient distance, like a grazing herd of horses, buffaloes, or antelopes.

These old-time reptiles even took to the air. Keeping four of the original five digits, they greatly elongated the little finger, and between this and the long hind leg they stretched a leathery membrane, like a bat's wing. With this they flew, strongly we must believe, since we find their remains in rocks that formed far out at sea.

Most of these flying lizards were small, the size of robins or crows. But some spanned twenty feet across the wings, and were, in their turn, the largest of living things that have ever flown the air. They all became extinct long

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before man appeared on the earth; and they are not, as is sometimes thought, the ancestors of the birds.

Nevertheless, the birds did develop from another group of reptiles. After all, the difference between the two, even now, is not great. Turtles have horny beaks instead of teeth. Birds have scaly legs and reptilian claws. A feather is only a scale shredded out into fine barbs. One still sees in the chicken wing two of the original five palm bones enclosed in the same skin, and the little thumb sticking out by itself on the upper side. In certain modern birds this little thumb still carries a rudimentary claw. Internally, the likeness of birds to reptiles is more evident.

Moreover, the earliest known bird was reptilian. It had three fingers in its wing, all provided with claws. It had teeth instead of a bill. Its tail was long enough to wag, as long, in fact, as its body, and the feathers stood out sideways along its entire length. But its feathers were real feathers. It was, therefore, a real bird; though if the feathers had not chanced to be preserved, the bones and teeth would certainly be taken for those of a reptile. It was about the size of a crow, and apparently

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not at all a strong flier, so that it must often have fallen victim to the alert and agile carnivorous reptiles of its time.

A little later these toothed birds came fairly to rival some of the ancient reptiles which, there being no beasts to amount to anything, had been dominating earth and sea and air. Some of them even turned into a sort of feathered dolphin, lost their wings, altered their walking limbs into great paddles, learned to dive deep and to swim long under water, and, being six feet and more in length with jaws that opened like a snake's, they must have made life distinctly interesting for the smaller sea reptiles and the fish. The birds were warm-blooded and, of course, much more efficient machines, weight for weight, than the cold-blooded creatures which preceded them. They, in their turn, underwent a vigorous evolution, which seems not even yet to have come wholly to an end. But there never has been an Age of Birds, for the reason that the four-footed beasts, evolving at about the same time, proved to be on the whole superior, and so drove them off the earth into the air.

Meanwhile, the other branch of the family, which is our own, began rather slowly. All

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through the times of the great reptiles and the early birds, our own forbears remained small and few and inconspicuous. Nevertheless, though they were a feeble folk, they were neither reptiles nor birds, but true beasts, the ancestors of all that live to-day; and they kept our side of the family going until the birds shed their teeth and the great reptiles had run their course. So the mammals are really about as old as the reptiles and much older than the modern birds. But the first of them were no larger than rats and mice; were in structure like our modern opossums, and they probably laid eggs, as a few of their descendants still do.

At the same time the evolution of the land plants had gone on side by side with that of the land animals, until about the time of the great reptiles, there had developed our modern types of fruit-bearing, nut-bearing, seed-bearing plants, together with grasses such as we know to-day. This gave a vastly better food supply than land animals had ever known before. It really made possible the further evolution of the warm-blooded creatures, because now, for the first time, they could get some sort of concentrated vegetable nutriment,

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and not have to spend all their time hunting one another or eating woody fiber. It would have been impossible to have had our modern birds until our modern plants supplied them with some sort of modern fuel to drive their engines.

Everybody is supposed to know, in a general way, the result. A little five-toed creature, the size of a dog, shifted his weight more and more onto his middle toe, dropped off one after another of his toes, grew in size, developed speed, and became the horse. Another, like it at first, shifted to two toes instead of one, and became the ancestor of all split-hoofed cattle and their relatives. Still another kept the five toes, but bound them into a bundle, greatly elongated his face, dropped off most of his lower jaw, retained the upper lip as a trunk, and became a dozen different sorts of elephant. All these creatures evolved enormous jaws and great grinding teeth to masticate twigs and leaves and dry grass.

Others still, keeping most of the primitive five fingers, changed their nails into sharp claws, lost most of their teeth, made chisels and daggers of the rest, and became saber-toothed tigers and cave bears and all the host

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of modern cats and dogs. Some, like the reptiles and the birds before them, went back into the ocean, more or less lost their walking limbs, and became sea lions and porpoises and whales. A few disputed with the birds the realm of the air, and remain as our modern bats. All this story is printed in the more recent rocks, plain as the nose on one's face, open to all men to read.

Meanwhile, one group of beasts did not share the general progress, but hung behind. They kept on all four limbs the original five digits of their amphibian sire. Not till one tries counting toes does one realize how few modern creatures there are who have done this. 'Tis a safe challenge to the first person one meets to name a single one. Not only that, they kept the amphibian nails, and did not alter them to either hoofs or claws. They kept nearly the old teeth, stronger, to be sure, and better set, but still teeth and neither swords nor millstones. They kept wrist and ankle joints that would turn up and down and sideways equally well, an elbow free of the skin, and they remained the four-footed beasts which look most like frogs. In short, they were the original lemur-monkey-ape-man group, which finally

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won the race for the lordship of creation by holding back and not evolving like the rest. They are the one group of creatures which, fitted to do no one thing especially well, can turn their bodily tools to any task. In a day when intelligence counted for little, they kept the sort of body that an intelligence could use. Otherwise it is hard to see how there could ever have been any men.

Rats, lemurs, monkeys, apes, and primitive men live neither on flesh nor on grass, but on fruits, seeds, locusts and wild honey, roots and eggs. To the lemur we owe the thumb, separated from the other digits and more or less 'opposable,' and also the practice of nourishing the offspring at the breast. The South American monkeys are, however, only an offshoot of our family tree. Our ancestors were the Old-World group. From them we inherit a nose that opens downward instead of forward, and the practice of having thirty-two teeth. All the Old-World monkeys and apes have exactly our equipment of biters and grinders. No other animals than these have the human dentition.

The apes, in their turn, grew a 'human' ear, finally came to get on without a tail,

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learned to walk upright, and developed a proper foot on the rear pair of limbs. For the ape's foot is not at all a hand, as is often supposed, but a true foot like our own, except that the great toe is even freer from the others than it is with savages who go barefoot, or with our own little babies. After that there remained nothing left to do to make the body of man, except to shed much of the hair, flatten the foot, straighten the backbone, shorten the jaw, take off some of the length of the arms and add it to the legs, alter slightly a few other sizes and proportions, and, most important of all, to multiply by three the size of the front part of the brain. When one comes to compare the human body with the higher ape's, the difference is found to be less than that between the ape's and the monkey's.

We do not know, we may never discover, the particular anthropoid who was our immediate progenitor after the flesh. Certainly he was none of the four great apes that are alive to-day. The apes are a vanishing race. Time was when they swarmed over Asia, Africa, and Europe, thirty or forty species of them, several distinctly more manlike than any that have survived. Only five of these

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primates are now left, the gorilla, chimpanzee, gibbon, orang-outang, and man. We do not yet know the precise ancestry of any.

Thus far we have traveled in the sure light of science, every step made certain by abundant evidence. May we not, at this point, take safely one step more, which, though it will carry us a little beyond the realm of natural science, will nevertheless leave us safely within the bounds of ordinary common-sense?

We have already seen how each new-made creature has to pass through an elaborate and complicated series of changes to convert itself from the bit of memberless jelly, which is its egg, to the enormously complex creature which it finally becomes. Every stage in this progress — we can see it under our eyes — is based on the one which went before it, and leads straight on to the next. The whole moves forward to a predetermined end.

Now, it has long been a commonplace of zoölogy, ever since 1840, in fact, that the evolution of each living creature from germ to adult always roughly parallels, often accurately repeats, the greater evolution which carried its ancestry to the state to which it has itself attained. Moreover, we all agree —

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we cannot help agreeing, for we simply have to look — that, for each single living creature of us, some power has determined in advance precisely what we shall come to be. Surely, it were a most extraordinary state of affairs if the age-long evolutionary process, which also has made us what we are, were not also predetermined from the start.

This is not science, for science deals only with that which can be proved. But, 'probability is the guide of life.'

One cannot but note, as he runs through the long history of our human stock, how universally the weak things of this world have been used to confound the mighty. The last survivor of the ancient fishes who first came ashore, learned to breathe air, and became the ancestor of all land vertebrates, is neither tuna nor salmon nor shark, nor any of the dominant creatures of the sea. It is a wretched little mud fish that hardly attains to a backbone, but does manage to use its swim-bladder as a lung. Our closest cousins among the cold-blooded land animals are not sea turtles nor the great snakes nor the crocodiles and alligators. They are the timid, helpless newts and frogs that stronger creatures eat. The great cats are not

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our nearest kin among the beasts, nor the buffaloes, bears, or wolves, but the 'little wailing lemurs' and the monkeys who have taken to the trees to keep out of trouble. Even among the apes, our own ancestors seem to have been among the smaller sorts; so that we men, though we are bigger than our fathers were, are pigmies compared with the gorilla. It is not the mastodon and mammoth that have outlived the stress and strain of the centuries, but the little animals that ran between their feet.

So it has ever been. Our fathers have been the feeble folk, who have survived only by matching brains against brawn. Our stock, instead of teeth and claws, evolved its nervous system.

Man has developed, in particular, a fore brain that is three times as large as that of the cleverest ape, and ten, twenty, and a hundred times as large in proportion to our bodies as those of the wild creatures whom we have beaten. More particularly still, we have become human and civilized, the children of God and the heirs of all the ages, because we possess a half cupful or so of gray matter over our left ears that is able to handle words. This is what has made us men — not hands nor erect

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posture nor bare skin, not even a big brain. The essential matter about us human beings is that we can think in symbols. As soon as we could do that, we could also plan and invent, reason, write, pray, have general ideas, repent of our sins, and do all the rest of the specifically human acts that no animal can possibly do. A certain stage in the evolution of our nervous systems, therefore, put us across the line that divides man from the brutes.

Unfortunately, the very fact that our evolution was essentially mental makes it quite impossible for us to follow its course. We can trace in greatest detail the history of tooth and claw and bone. But we cannot trace in any such fashion the history of the brain, precisely because the essential point with a brain, its utility for an intelligence, is precisely the quality that does not clearly show. So we do not know, and we can never possibly find out, just when and where our first ancestor became a man; although we quite conceivably may, at some future time, come upon the buried bones of that progenitor of ours who is the 'missing link' between us and the lower animals. For be it understood that the ape that we know has never been considered to be

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our ancestor in a straight line. The most that has ever been claimed by science is that ape and man are descendants along separate lines of a common ancestor.

We are sure of one thing, however, that the race of men is very old. Egyptian priest-astronomers, the product of a long civilization, were observing the stars in great temple-observatories in 6400 B.C. Men of our own sort, whose descendants are still with us, appeared in Europe at least twenty thousand years ago. Early races, clearly human, were there before them — a hundred thousand years before. When we come to still earlier creatures, doubtfully human, yet certainly not apes, the years mount well toward the half million.

We men are, therefore, by no means the latest comers on earth. Of necessity, we are older than any of the domesticated animals and plants which we ourselves have influenced. But we are also at least as old as most of the four-footed beasts, wild and tame, with which we are familiar. Early men who left their crude stone weapons all over Europe fought and hunted aurochs and cave bear, woolly mammoth and broad-nosed rhinoceros, saber-toothed tiger creatures that long ago perished

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off the earth, and left us sole survivors of that ancient world. Not one mammalian species now alive is certainly known to be older than our own.

Our cradle we seem to have shared with our brethren, the other anthropoids. It probably lay in south-central Asia, in what is now northern India, the Himalaya region and Thibet, when most of this high country stood nearer sea level than it does now. There, apparently, our stock first separated itself from the great apes, and at least began its division into the three main types of modern men. From there, also, we spread over the earth and subdued it.

Of these early migrations we know little, for the great continent of Asia is still imperfectly explored. The earliest creature who can fairly be called human was discovered in Java, some three thousand miles away from the place where his people probably started. We count him human, on the whole, because he walked on his hind legs and had a brain twice as large as any ape. But of his handiwork there is no certain trace, and we do not know whether he could even talk. There is no reason whatever for supposing that this *Pithecanthropus* was any ancestor of ours.

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It is a long jump to the next oldest man thus far discovered — a hundred thousand years in time — in the suburbs of Heidelberg, in Germany. He, also, although he was a proper man, was no ancestor of ours. He had almost no chin, hardly more than has a chimpanzee, and his huge jaw, more massive than any Eskimo's, was so narrow between the grinding teeth that it is hard to see how he could even have manipulated a human tongue. But the teeth are human, the sort of teeth that belong to a creature that can use sticks and stones for tools and weapons, and no longer needs the tusks of a gorilla.

The famous 'Piltdown skull' found in Sussex, England, in 1912, housed a brain that was not especially inferior to those of certain modern savages. The bones are enormously thick and solid, and the forehead is low. But the apelike ridges over the eyes of the half-man of Java have largely disappeared. The age of the Piltdown man is placed at two hundred thousand or three hundred thousand years. The primitive European is taking on a distinctly modern look.

From this time on, human artifacts became abundant in Europe — rude stones at first,

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hardly fashioned at all, such as the Piltdown man probably used. Later came well-fashioned spear and arrowheads, scrapers, and awls both of flint and of bone. Between one hundred and one hundred and fifty thousand years ago, European man began to make his own tools.

The earliest race in Europe that we know in any numbers dwelt in the limestone caverns along the upper waters of the Rhine and the Danube, beside the rivers of France and even as far west as Gibraltar. These people lived in caves, used skins for clothing, were acquainted with fire, buried their dead ceremonially, and in general were not much below the cultural level of some of our North American Indians.

Yet even these men were not fully human. They could not stand quite erect. Their heads were low and flat. Their huge jaws, almost chinless, projected beyond their foreheads. Indeed, in some points, they were still rather nearer to apes than to men. Even their brains, though as large as ours, were apelike in form, especially small in front, and with so rudimentary a speech center that it is by no means sure that their owners could manage to talk at all.

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They were a short, broad-shouldered stock, hardly more than five feet high, with large, powerful hands, but with thumbs that were only imperfectly opposable to the fingers. The bones of their backs and necks were so apelike that they could not hold up their heads like men.

These are the earliest human beings who are thoroughly known. They became extinct in Europe before 20,000 B.C.; and so far as evidence goes, they have left no descendants anywhere on earth.

Meanwhile, most probably in Asia, our own folks had become *Homo sapiens*, and had split into the various human races that we now know. They entered Europe in successive waves, exterminating the less evolved peoples that had preceded them, very much as we in our time have supplanted the American Indians. They were men like ourselves — there are no finer men in the world, nor more intelligent than some of the earliest of them. Progress since has been that of communities, not individuals.

They brought with them agriculture, painting, sculpture, lamps, dogs, and a belief in a life after this, if we may judge from the cere-

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monies with which they buried their dead. These, at last, are our ancestors, the earliest people anywhere on earth of whom we can say of a certainty that these are our own blood.

Four waves, in particular, drove outward from Asia and made the beginnings of modern western peoples. The first has largely spent itself. Only a few bits of southwestern France show occasional survivors. A later wedge of dark, straight-haired, round-headed men still lies through central Europe, its apex toward Ireland, its thin edge in southern France and Switzerland. Eastward the edge grows broader, and the people more Asiatic. Russians, Tartars, Mongols, the type alters as we travel east, until we reach the centers of the Yellow Race. Their westward branch entered the new world by way of Behring Strait and became the American Indians.

South of these lie the small-bodied, dark-haired, and long-headed Mediterranean peoples, whose relatives stretch away into Asia Minor, Arabia, Persia, northern Africa, India; and, more or less mixed and mingled with other stocks, appear through the East Indies as far as Australia and the isles of the sea. Finally in northern and northwestern Europe are the

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tall blonds who seem to have come in along the northern border of the continent as the retreating glaciers opened a passage there at the close of the great Ice Age.

We 'white' Americans are a mixture of these three stocks, only we haven't mixed. Ten thousand miles away, fifty thousand years ago, early man evolved those three types along with others. And still in every American street we pass tall men and short, blond men and dark; while from every gallery we look down on skulls that are round like apples or long like eggs. More enduring than the eternal hills, these racial qualities do not change.

Man emerges from the brute a vertebrate mammal, classified by scientists as belonging to the order of Primates, of the Hominidæ family, genus *Homo*, species *sapiens*, differing from the anthropoid ape in having the power of speech, larger brain area, and slight differences of physical structure.

Has man's physical evolution come to an end? We do not know. Perhaps more perfect adaptations of bodily organs are in process. Perhaps through Man's ever-increasing knowledge, he may come to play an even larger part in the directing of his own physical evolution.

CHAPTER V

THE NATURE OF MAN

WE know from our own experience that in any analysis of human nature the physical looms large. Through experience we know also that Man is more than body — that there is Mind of which we must take account. And if we take into consideration the emotions, as of course we must, we know that he is more than intellect.

Our experience in the field of interpretation is made none the less difficult by discovering at the start that perhaps the greatest of all the mysteries we have set out to investigate is the very mind with which we are doing our thinking. Mind cannot be properly defined. It is known by its functions; it thinks and feels and wills. But in the last analysis, what is thinking and feeling and willing?

Let us turn once more to the biologist for a more detailed account of the brain and its performance. This organ, made up of gray matter and nerve fibers, may be anatomically analyzed. It may be weighed, measured, and described. The size and weight of any given

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brain may be as easily determined as that of the liver and stomach. Whereas the mind may be known only by introspection or inference from behavior, the brain may be examined by the microscope or even the naked eye.

Now, the human brain is really a very wonderful thing, with at least as many visible parts as all the rest of the body put together. In fact, the medical student or the beginner at zoölogy finds the structure of the nervous system, through which the brain functions, to be far and away the hardest task he has to master.

The brain is essentially an enormously complicated switchboard, by means of which virtually every part of the body can instantly be connected up with virtually any other. The number of parts of the body is also enormous. The tip of the tongue, for example, feels separately two roughnesses on skin and tooth that are less than a millimeter apart. This means that there is a separate nerve ending for each of the two sensations, which have to telephone in to the central station over separate wires, or else the two messages would get mixed. So it is over every bit of the entire skin surface that is felt separately.

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Consider how many different objects or spots of color may be seen at once — for example, in a field of grass or a flower bed. Each of these sensations has to come in separately over its own special fiber of the optic nerve. But an optic nerve is only the size of one telephone wire. Yet the optic nerve is not a wire but a cable, with a hundred thousand telephones, and a large exchange that handles them. But the optic nerve takes care of only the back of one eyeball.

A nerve fiber may be three feet long, covered with two separate insulating coats, and yet so slender that twenty or thirty laid together are only the size of a single hair, two thirds of even this being the insulation, not the 'axone' itself. These all, in the end, connect with the gray matter of the brain cortex, where the brain cells are packed together a thousand to each pinhead of space. But even these cell-bodies are complicated things that under high magnification look like trees, with roots and branches and commonly with a long tap-root that runs off as a nerve fiber to connect with some distant member, or, on the other hand, to be a cross-cut within the living switch-board itself, linking up one part with another.

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There are whole bookcases which contain volumes devoted to the pictures and descriptions of different types and kinds of these nerve cells, which are as different from one another, and about as numerous, as are the different sorts of trees and shrubs and smaller plants about us that the nerve cells so strikingly resemble. Added to all this, each separate nerve cell has an internal structure that is at least as complex as most of us know to be the internal structure of a big tree.

Altogether, in short, the human brain is quite confounding; so that the more we study it, the less do we seem really to know. Somehow or other it certainly does connect with our thinking. But of the relation between particular ideas and particular elements of the brain tissue, we know about as little as about anything on which scientific people have spent so much hard work.

In addition, there is another mystery no less profound. What becomes of our thoughts when, for the moment, we stop thinking them? We learn, for example, slowly, and at great pains, to play or to swim. Then, for a year, we do not open the instrument nor go near the water. But the knowledge stays with us, and

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when we do try the music or the water, we find that, barring a little weakness of muscle, we know just as much about either complex art as we did the year before. Sometimes, in fact, we actually know more; for knowledge, not too long unused, seems to ripen and improve somewhere beyond our ken, so that it is said we learn to skate in summer and to swim in winter.

Now, where was that latent information? Probably, at least in part, it persisted in the nervous system as a set of muscular habits, the sight of the notes or the feel of the water touching off a 'reflex' that was perfectly conscious while we were learning, but has now become submerged in some unknown part of us.

But suppose, instead of music or sport, we have learned the date of the Norman Conquest or the Presidents of the United States. We certainly do not remember these as muscular habits. Possibly, as has been maintained, our information has altered the condition of our brain tissue. But no mortal has ever pictured to himself how a brain cell will be descriptively different before and after its owner has memorized a date. That line of exploration has led nowhere.

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On the whole, a more profitable way to label our ignorance is to recognize frankly that our ideas do persist somewhere outside the known portion of the thought-stream, and to call that storehouse¹ of latent knowledge the Subliminal Consciousness, or, briefly, the Subconscious.

We feel, in other words, that, underneath the tidy little apartment in which the conscious self keeps house, there lie cellars and galleries and vast caverns, inhabited by forgotten memories of our own, and the ghosts of long departed ancestors, and devils, perhaps, and it may be angels, any of which on occasion may come up the cellar stairs and pop into the parlor among company. Out of this psychic cellar come, apparently, our dreams — which are most remarkable and mysterious affairs when we come to consider them. Most persons of genius, novelists especially, testify to a feeling that their ideas come to them spontaneously from outside, and that they are 'illumined' or 'inspired' without will of their own, in a fashion that they do not understand. Who of us, however commonplace, has

¹ 'The Unconscious is not a mere storehouse but a living force.' Frances G. Wickes: *The Inner World of Childhood*.

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not had the feeling that ideas and plans are elaborated and improved somewhere outside his conscious thought-stream and then, already complete, brought somehow into the part of his mind that he knows about? All such experiences, with a thousand more that have been recorded both for normal and abnormal reasons, are conveniently lumped together as manifestations of the 'Subconsciousness.' Only we must not forget that the 'Subconsciousness,' like many another long word, serves only to mark off one portion of what we do not understand from other items of our ignorance.

Nevertheless, this concept of a Subconsciousness does serve to relate to one another many a strange experience, and many a common one, that otherwise would stand alone and completely unexplained. It may, for example, very well be that, although each of us seems to himself to live in a separate mental house, with lawns and streets and walls between himself and his neighbors, nevertheless, the cellars connect, and that we get help or hurt from one another in ways that we do not know. More important still, it may well be that whatever beings there are in this large universe

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— like ourselves, but unknown to us directly — have access somehow to the unfathomed depths of our minds and send us communications which to us seem only dreams or happy thoughts or good guesses or our own cleverness. But this also is a realm of mystery which we have as yet only glimpsed.

Of one thing, however, we are always sure — our own thoughts. All of us are conscious from moment to moment of what, for want of a better term, we may call a stream of ideas which seems always to be passing through our minds. Sometimes these ideas are vague and shadowy, as reverie and dreams. Sometimes they are clear and sharp, as when we look at some object with close attention trying to make out every detail, or are thinking hard over some problem, difficult, indeed, but still within our capacity.

In any case, for better or for worse, there the ideas are. They start going in the morning the instant we awaken. There is some reason for thinking that they never cease even during dreamless sleep, little as we recall them afterward. Most of us can remember something back to the age of two or three; and all of us feel that this thought-stream has been virtually

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continuous throughout at least our waking lives from birth.

We feel, moreover, that this strange thought-stream is in some very special sense 'ourselves.' We are, of course, in one sense, bodies — so much bodies that it is impossible for most of us in the least to imagine what it would be like to be any sort of disembodied spirit. At the same time, we feel also that the thought-stream is somehow essentially ourselves in a way that our bodies never are. We are, indeed, as the scientific people say, 'psycho-physical personalities'; but we always recognize that the mind rather than the body is the senior member of the firm.

Most persons nowadays have at least some idea of the enormous complexity of the bodily machine — which really is not so much one machine as a whole industrial civilization, with factories and railways and telephones and the rest. One blade of grass is about as complex, and a great deal harder to comprehend, than a whole city-full of men's works.

But our minds we so commonly take for granted that we do not at all realize how vastly strange and complex they also are, and how little the wisest of men really knows about his

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own. The mind is the august seat of the intelligence, will, and the emotions, but there are the hidden traits in the individual that may change the course of the intelligence, will, and emotions, thus making the analysis of any given action a very complicated matter. Likewise, in psycho-analysis, the entering in of a personality on both sides opens up difficulties of interpretation.

Common everyday acts may be the most easily analyzed, but there is in each of these no less of wonder than in the more complicated behavior that implies inner conflict on questions of conduct. Take, for example, the operation of the several organs of the body, in particular those that function without our conscious attention. How automatically is our breathing carried on, our circulation, our digestion, and the many other offices that keep us alive and well and comfortable! At this present moment, inside your body, how much is happening! Things may be dull outside, but, even if you are not awake, inside there is always interest and action. One half of the average man's daily output of energy is consumed in performing the internal functions of the body of which each of us is directly unaware.

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Imagine yourself waking up in a silent chamber, with white walls and no pictures on them, the sun excluded, and no living being near. Even then how much is going on! There is the body itself with all its functions of which you are at the moment unconscious. Besides these there are the conscious sensations reported to the brain from every portion of the body's surface. You feel warmth or chill, the touch of the bedclothes above and the quite different feeling of the mattress underneath. There is the sense of well-being or discomfort, of hunger or thirst or their absence, of the position of every joint and limb, the feeling of languor and relaxation or the vague muscular tone that means that the body is gathering itself together to start work. There is the heartbeat and perhaps the pulse. Even if your thoughts do not stray beyond this room, the stream of ideas is still flowing. Even the white walls appear to you not merely white. You notice shadows and lighter spots; the shadows themselves are not equally dense, and some are more sharply bordered than others. If you have a painter's eye, you will see that each shadow has its own color, that it is not quite like that of some of the rest, and that none of

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them is really gray. Even under these artificially simple conditions, then, the body may be continually active, and the thought-stream highly complex.

We say that we have five senses — we really have more than five in every finger. We feel quite independently, touch — that is to say, pressure — heat, cold, and pain; and we have tiny ‘end-organs’ in the skin, all different, by which each little fleck of tissue reports, every instant, to the thought-stream, one or other or several of these. Thereupon ‘we,’ or some small but accurately located portion of our inner picture of ourselves, ‘feels’ hot or cold or uncomfortable or touched.

Then there is, besides, the ‘kinesthetic sense,’ which tells us, without our looking, whether a finger is straight or bent and how much, how far it moves when we move it, and how hard or gentle the movement is. Without this ‘kinesthesia’ there could be no accurate or graceful or well-timed movements. Nobody could throw a ball, use a tool, play a musical instrument, dance, sing or speak, or, in short, do anything that requires a muscle to move just so much and so strongly but no more.

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As for sight, we have at least four sights, one for each of the primary colors and one for black and white. Any one can prove this by noticing that all objects are the same color in a dim light, though the shape can be made out. The three color senses are out of circuit. Only the black-and-white sense remains.

We have four senses of taste — one for salt, one for sweet, one for bitter, and one for acid. Nobody has analyzed smell; we do not know how many different primary smells are being reported to us right along. As for hearing, we probably hear separately every possible pitch throughout the dozen or twenty octaves that we hear at all. But almost anybody can distinguish quarter tones, and a good violinist goes far beyond that, at least a hundred different pitches in each octave. Two thousand different 'thoughts' are then possible concerning pitch alone.

But all this has to do with sensations only. Beyond these lie all the elements of the thought-stream that do not come directly from outside. Think of the number of people of one's acquaintance, the number of words one can spell and pronounce and comprehend in the two or three languages that most of us

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know. Think of the number of different objects of which we understand the use, the different locations where we can find our way, the different things we can do.

All this information is either actually in the thought-stream, or else somehow — we know nothing about how — just within call, and Subconscious ready to enter the consciousness the instant we want it. Truly, the mind is at least as remarkable and complicated as the body!

Both mind and body are ultimate mysteries, which no man, no matter how wise, can say he really in the least understands. No less a mystery is the relation between the two.

We know, for example, a good deal about what happens when we touch a pin-point to a finger-tip and it hurts. There is a minute knob on the end of each tiny nerve fiber in the skin that is essentially a little chemical machine like the percussion cap on a gun cartridge, or the head of an ordinary match. The least touch on that 'receptor' explodes it, and starts up a chemical process that runs the length of the nerve to its place in that marvelous switchboard which we call the cortex of the brain. Thereupon, within a few hundredths

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of a second, 'we' somehow set another cap and lay another fuse, all ready for another message. Apparently, it is all a chemical process, such as we can imitate any time with wires and batteries and acids and fulminate. Only, somehow, 'we' do it, unconsciously, inside our bodies, a great deal more rapidly and more efficiently than we ever do it outside!

But then comes the great mystery. There is a minute chemical explosion in the 'end-organ,' a faint wave of chemical activity running a few feet along a nerve, some sort of chemical or structural alteration in the brain. Then comes an alteration in the thought-stream. Somehow, apparently, a physico-chemical process in the brain tissue connects with a thought in the mind. Nobody has the least idea what it is that jumps the gap, or how. A chemical process is not an idea — and there is no remotest suggestion that will hold water for a moment as to how one ties up with the other.

Or take the reverse activity, equally familiar, equally incomprehensible, and equally taken for granted and ignored.

We think of some action, wiggling a finger, for example, or taking a voyage to Europe.

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There is an idea in the thought-stream. It may remain as an idea for any length of time from seconds to years. But if it takes on certain special characters — which, of course, psychologists have carefully analyzed — it forthwith, apparently, does something to the brain. Thereupon, the brain, which is a vastly complicated machine, but still only a machine, begins to grind out its special product. The great switchboard plugs across the right connections. The proper nerves carry their chemical waves. Another million or two little end-organs embedded in the striped muscles are moved to explode. The microscopic muscle fibers begin to burn the sugar which they have been storing for the occasion, manufactured from the substance of previous meals; and according to the particular idea that was in the thought-stream, we crook one finger or find ourselves on the other side of the world.

Here is, verily, a notable miracle. Somebody thinks the right way, and great steamers put to sea, mountains are tunneled or blown into the air, rails are laid across the continents or cables under the sea, light that has been traveling across space during the whole of human history writes its autograph upon a glass

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plate in some observatory, a regiment of living men suddenly die. It's all the same thing, all equally incomprehensible, and all equally marvelous to the scientific observer.

There is always the fact; we think. And we see the world outside alter at our bidding, the world of 'matter,' as for want of knowing anything about it we call that unknown something that seems not to be like thinking. But philosophers have maintained, and in fact most of them still do, that what we call 'matter' is only another sort of thinking that seems more certain and permanent, and for some purposes more important, only because it is itself a portion of the thought-stream of some great Thinker who does not change his mind. For really about the only way that we can even imagine any bridge across the gulf between what we call 'thoughts' and 'things' is by considering things as only another kind of thoughts, in a greater thought-stream that is not our own.

Because nobody really knows what mind is, and because it is so very difficult to separate one's SELF from one's THINKING, and yet because bare intellect does not seem to account for that peculiar sense of separateness that

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each one of us feels — of being a particular entity apart from other entities — we are baffled beyond measure in seeking to find an adequate term for that which each one of us knows as his or her SELF. The riddle of personality confronts the finite mind.

The terms 'soul' and 'spirit' have been generally adopted to describe that inner self that is not brain, nor yet body. Because at death the breath leaves the body, the self was in early times associated with breath or spirit. Because to-day we feel that there is a self that transcends and outlives the body, we conceive of this self as an ethereal form dwelling for a time in a fleshly habitation.

It is very doubtful if Mind can be properly distinguished from Spirit. But even if we become convinced that they are identical, we need not in any way relinquish the comfortable belief that we ourselves, along with all our human brothers, are spiritual beings independent of our bodies and brains. If the question arises, How, if I am Mind, could I function apart from the brain which is its instrument? we may think of a parallel in electricity, which is disembodied, and yet we know that it uses various instruments to transmit

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itself — the telephone, lightning-rod, and all the rest.

May not Mind use various instruments for self-expression? But if we adopt the term 'mind,' instead of 'soul,' we must be careful to distinguish between intellect, pure and simple, and the all-inclusive Ego. Each of us is an individual set apart from his neighbor by peculiarities of temperament, training, and everything that has gone to the making of a self-conscious being.

Leaving behind for the moment the consideration of life in its general aspect, let us now turn to consciousness itself. With the discovery of self, we are faced with the greatest of all human problems. What is this 'I' that recognizes itself? The question of who or what the 'knower really is' in this vast field of consciousness has never yet been answered.

The German philosopher, Jean Paul Richter, gives us a picture of his first experience of self-consciousness. As a little child he is struggling to close a door against a strong wind. He pushes, and the door is pushed back against him. He desires, and his desire is thwarted. Here is a power not himself that resists his efforts. Here is his own will, quite distinct

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from his body and from that which is pitted against him. He becomes conscious of HIMSELF for the first time.

One of the earliest experiences of the conscious mind is this awareness of self, which makes of the individual a personality apart from all others, and is the very beginning of that journey of exploration that is our conscious life.

It is as difficult to define consciousness as it is to describe the sensation 'red.' To be known it must be experienced. Consciousness, nevertheless, may be described and the description understood by any one who is conscious, just as the term 'red' may be understood by any one who has seen that color. Each of us is directly aware of his own consciousness; that others are conscious like himself is only a matter of inference from their behavior.

Following close upon the discovery of self, however, comes the awareness that other selves do exist, spirits with whom our spirits may meet in harmony or discord, as the case may be. More than this, most men come eventually to be assured of an Infinite Personality, transcending the finite selves of this

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world, but with whom these may come into conscious spiritual contact.

Self-consciousness does not account for all that is happening in this world. There has been among men a universal, innate hope of immortality, a sense of the intangible which, if sufficiently developed, would relegate this world of time and place, of material and physical values, to a position of secondary importance.

Science or no science, we cannot escape the facts of Life. The Universe has always been immense and our world since its inception forever round, but its inhabitants have not always known this to be so. Nevertheless, in spite of their ignorance, men and women have risen to heights of art, oratory, literature, religious fervor, service; some have never heard of evolution, some have flouted the theory, and yet have been happy, efficient, confident, adjusted to whatever this life might bring and triumphant over death, because of a certain conviction that had nothing to do with science, that could even use unscientific chronicles as its vehicles of expression from one generation to another.

In every age men have voluntarily suffered

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privation, hardship, ostracism, martyrdom, for the sake of an ideal — to win or to further that invisible something which, in their estimation, outbalanced everything else in life. Recognizing himself as spirit in a world that is more than mechanistic, Man reaches out toward the invisible and intangible, making discoveries that are as real to him as those that have to do with material things. In all ages, in spite of influences to the contrary, there have been those who have been convinced of a purposeful meaning to creation, and a beneficent Intelligence back of it all. By a natural tendency of thought even primitive peoples relate to their environment and to themselves ideas of purpose and order. On this idea of purpose is based the religious interpretation of Life.

All law is essentially spiritual. Huxley says: 'We know more of mind than we do of body; the immaterial world is a firmer reality than the material.' It is impossible for the mind to conceive of anything permanent but spirit. The scientist in the laboratory can combine hydrogen and oxygen with certain foreseen results; can be certain of producing ice if water is brought to a given temperature, of

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melting iron at a given heat, can compound, analyze, discover, and yet, even in the field of science, there is much that remains uncertain. Moreover, even matter itself, as we have already said, is perhaps nothing more nor less than thought.

We are face to face with the fact that it is Man's nature not only to desire to live and to multiply, but to seek to make contact with a Universal Spirit whom he assumes to be existent in his world. A notion of immortality is native to Man's mind. And is not Man himself the key to human history, one single personality embodying all the tendencies and possibilities necessary to account for everything that has happened in that history? Looking into the past of a civilization, or a religion, or an individual, one realizes that he is coming upon results, the causation of which lay deep in human nature in the beginning. These results have been brought about through the interplay of human nature and the circumstances and environment with which it comes in contact, an intricate performance involving both the consciousness and the subconsciousness of Man.

The world of our senses is a world of matter,

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energy, space, time. The mind of Man outsoars them all, and where he cannot understand, he trusts. Man recognizes himself as spirit functioning in a spiritual world, and he rests on faith as naturally as a bird on wings. As gravitation draws all matter toward a common center, so there is a self-righting tendency throughout nature preserving balance and order. There seems to be also a compelling power in the psychic world, drawing all minds toward a common center or foundation of truth and right.

If, as we continue our investigations, we are tempted to become dismayed by the thought of Man's animal ancestry, let us remind ourselves that it is the end and aim, the direction and the accomplishment that count, and that, despite the lowly stages in the journey, the origin and method of creation may be altogether divine.

'For if the flour be fresh and sound,
And if the bread be light and sweet,
Who careth in what mill 'twas ground,
Or of what oven felt the heat,
Unless, as old Cervantes said,
You are looking after better bread
Than any that is made of wheat?'

In beholding the butterfly we do not regret

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the chrysalis. To fully appreciate the significance of the life of a child, every parent should know something of the marvelous procession of the years that have preceded it.

Before one can fully appreciate the significance of human life, he must follow some of the steps by which Man has progressed from the life of the jungle to that of our present civilization, for in races as in individuals traces are discoverable of what has gone before. The residuum remains in character and in rock formations, by means of which we may follow the course of evolution in the world of Nature and of Man. Not without breaks, not without missing links, not without much mystery and some bewilderment. And yet, even when accepted as the product of emergent evolution, Man as a creature apart from the brutes stands revealed. That he, from such lowly origin, has arisen and developed and achieved is to many a matter of pride, for to have had resident within him the necessary forces for such evolution would seem to add dignity to Man and to make him an actual participator in creation.

In looking upon the unfolding of life, we realize that we are not only observers, but

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interpreters. And in making any study of the past history of the race, we discover that men have always been seeking, in one way or another, to interpret the Universe and Life as they find it. I repeat: Beyond what Man can see, hear, feel, touch, and yet within the circumference of his consciousness, there is a realm of the unseen which often looms larger in his consideration than the world of the senses.

Throughout the world of nature living creatures are ever seeking to adjust themselves to physical realities, inward urge and environmental influence both working together to mould and develop the organism. The effort toward adjustment implies the reality. Given certain tendencies in an organism, science goes in search of the hidden cause of its behavior. It does not seem probable that Man, who is ever seeking to adjust himself, not only to a physical world, but to an invisible realm, is an exception to the rule, and that the spirit whom he postulates is not a reality.

The scientific mind of Man and the Truth to be revealed are the permanent elements in the field of scientific research; it does not seem unreasonable to assume that the tendency

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to believe and the Truth to be assented to are real and permanent facts in consciousness. Even savages, however primitive, are by their very nature psycho-physical entities.

CHAPTER VI

MAN THE INTERPRETER

ONE of the chief differences between Man and the lower animals is his ability to interpret what he sees about him and what he feels within. His mysterious mind realizes not only the mystery of self, but of Life, and instinctively interprets this Life in terms of beauty and purpose, as well as scientific analysis. Although Man has not succeeded in analyzing Life itself — that vitality that animates all living things — he has investigated all known properties of matter, all organic forms, and all recognized phenomena of behavior, in the endeavor to discover answers to some of the questions about Life that are prompted by human experience. The result is a vast store of knowledge, and volumes upon volumes of theories concerning our Universe and what it contains. Out of the innate curiosity of human nature have come various fields of interpretation, various schools of thought.

For Life has many aspects. The physicist deals in substances and compounds. The physical scientist is concerned with the phe-

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nomena of the physical world. They both observe and try to explain what they see. They seek to answer the question Why? in regard to the material and physical worlds. Neither of them in his official rôle is concerned with a First Cause, and yet their work is of the utmost importance, as it is the basis of all we can learn about our world. Their search after Truth has been carried on with as much self-sacrifice and devotion as that of the idealist, but they treat with only a part of the Universe, touching not at all the problems of the psychologist and theologian.

The scientist observes, experiments, and prophesies what will happen, given such and such conditions in the material or physical realms, whereas the psychologist makes his experiments in the field of human behavior. His field includes the mind and the emotions. The scientist explores the visible and tangible; the psychologist investigates what takes place within the personality. The latter has to do with actions, conscious, subconscious, and unconscious, and although he may predict with more or less exactitude what will occur, given certain mental and environmental conditions, his prophecies are less certain than those of the

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scientist because human experience is the laboratory where his experiments must be made, and human prejudices and defects entering in make standardization practically impossible.

But although the scientist explains more and more about our environment and our bodies, and the psychologist reveals to us our selves, we need more than either science or psychology to help us to handle what we learn and what we find. Man moves on into the province of philosophy and religion, which, although they deal with equally real and important subjects, may not either of them be termed science. When we come to mental or spiritual experience, we enter a realm where actual proof is out of the question, except where we may feel that we have proved to OURSELVES, through experience, certain facts, answered for ourselves certain mooted questions. Unfortunately, there is as yet no body of authoritative, unvarying testimony upon which one may draw for proof of psychic or spiritual phenomena.

The mechanistic theory holds that all life may be described in terms of matter and motion. This would exclude all other interpretations than that of the physicist. But according to the belief of most scientific men,

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the experiences of the individual fall into two chief classes — those which may be described in terms of spatial phenomena, and those experiences, such as emotions, which do not have spatial attributes. To sum up: let us go back to our world of light and shadow, day and night, let us look at the sunset and reduce it, if you will, to terms of matter. The physicist is able to tell us the consistency of those clouds shot through with color, and the cause of the effect of the sun upon cloud and sky. But it takes an artist, or the soul of an artist, to go beyond chemical cause and effect and interpret in terms of art the beauty that is there. The beauty of the world is not interpreted by science. There are mental states and conscious experiences that cannot be described in terms of atomic action. Color, smell, taste, memory, pleasure, sorrow, remorse are all unanalyzable elements of consciousness. Watching the sunset are those also who see in it not merely a familiar phenomenon of nature, governed by laws well known to the scientist, not merely light and color blended in an harmonious effect beyond the skill of human artist, but the sign, symbol, and expression of a Creator at work.

We have most of us come to believe that our

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environment is the outcome of an evolutionary process beginning so far back in the past that the mind cannot number the years. And to-day so much is being discovered about this environment, so many new revelations are being made regarding the very atmosphere which surrounds us, that many believe we are on the verge of great discoveries in the realm of spirit.

Yet, in spite of all our discoveries, the realm of the known is so small compared to the vast field of the unknown that we understand comparatively little more about our universe and ourselves than when the first inquiry was made into the mystery of being. Most of the things we want to know about are too elusive to be captured or too subtle to be analyzed.

I know no more about the vitality that animates the flower in my hand than did my earliest ancestor in the morning of the world. I do not know what Mind is, or Consciousness, or Life; why I am here, where I came from, or whither I am going. Standing in the spotlight of the present, I see but a short distance behind me, and nothing whatever of what lies before. And yet, when I awake to-morrow morning, I must conform to the world that

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touches me on all sides, or be disregarded, trampled upon, or attacked by my fellow-men. If I am to be at peace, prosperous, free, I must be ready to meet whatever circumstances confront me, whatever predicament befalls me, whoever in the rôle of relative, friend, or associate comes in contact with me, with more or less tact, cöoperation, and conformity to existing conditions and requirements. Rough necessity moulds my habits, not intelligent insight and understanding, for I have no time for either in the pressure of my days. Knowledge is power, but I have no opportunity to acquire it. What chance is there for me to make a success of Life, of playing satisfactorily the part that has been thrust upon me?

I am the inheritor of all that has gone before in biological evolution and mental development, in human history, in the progress of the arts and sciences, literature and religion, and in my own personal experience, and yet I am unconscious of much of this influence from within and without. Only by concentration, which requires time, money, and effort, am I able to gain scientific knowledge of myself and the world in which I live. If, perchance, I do have opportunity and inclination to investi-

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gate, the little knowledge I may acquire is so meager compared with what must remain forever beyond my comprehension, as well as that which I have neither time nor ability to assimilate, that I am inclined to become all the more confused by my journeys into the unknown. Although insignificant, I appear at times to be an important part of an intricate system having plan and design, but can I discover my true relation to the whole or to its many parts? In any case I am not permitted to stand still, but must be forever moving in some direction. I have discovered that even the mind with which I do my thinking is a mystery. Now I am confronted with the fact that I know nothing of my actual relationship to the great order in which I find myself.

What am I to do? If I remain indifferent to my ignorance, I may miss an opportunity to become more efficient in the art of living. If I undertake to inform myself, I may become too much entangled to perceive at all. And yet I need to know more in order to live well, for I even lack some of the instincts of the lower animals who adapt themselves quite naturally to their environment. Is not the possession of the necessary knowledge of how

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to live limited to the fortunate few who are able, by the expenditure of time and money, to acquire it?

Let us be assured that our destiny hangs on no such slender thread of opportunity. There is a more subtle direction to Life than that which knowledge, or even intelligence, can give. Out of the depths of unawareness come the most potent suggestions of our conscious experience. As down in the depths of the sea, we believe those first simple organisms faced the parting of the ways, so out of sight and out of mind are many of the turning-points of Life. Indirect is often stronger than direct influence, and out of simple beginnings the greatest things have emerged. After all, may it not be a very fortunate provision of Nature that so much is hidden from us? Feeling our way by instinct and intelligence, intuition and inspiration, by means of inherited tendencies and acquired characteristics, we human beings learn what we can as we are able to assimilate it.

Certain impulses accompanied us into this world; they were our stock in trade. Upon them we depended for all the progress we made in early years, for Man as well as the lower

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animals is supplied, to a certain extent, by Nature with the means of adapting himself to his environment. It is natural for a child to suck, and by sucking it keeps alive; it is natural for him to investigate, and by investigation he learns what can and what cannot be done. The Ultimate is a mystery, the Universe is a mystery, I myself am a mystery; and yet, as self-conscious, God-conscious beings, we do think, feel, and act for the most part in a reasonable manner. We are more or less at home in this world from the moment of our birth — we can find our way after a fashion in this maze of life, even when we as individuals are ignorant and stupid. It appears that we are not left altogether at the mercy of chance, that even without keen intelligence and a great amount of knowledge the way may be made plain for any one of us. Moreover, a Magdalen may outrun the Pharisee in reaching to the heart of things. There have been washerwomen who have known more of God than some kings.

As I go through life, it is necessary for me to try to discover some meaning in it all. I must interpret, however imperfectly, both myself and my experience. Even if I cannot see far,

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I instinctively look backward, forward, inward, upward, gleaning what I can. For there is a certain irony about my situation — thrown into this arena which overwhelms me with its unknown and unknowable past, present, future, I must 'find myself' or perish.

As it is inherent in the nature of man to find an explanation of the Universe that in some measure satisfies his own individual need, so it is natural that I, as an individual apart from all others, should attempt to make my own interpretation of the Universe and of Life.

For the first time in this survey my own PERSONALITY comes to the fore, as the medium through which the GREAT PANORAMA may be viewed. In the midst of Life there stands a figure, a person, my SELF, apart from all other selves that ever lived. I, an infinitesimal speck in the immensity and inscrutability of the Universe, am caught up, whether I will or no, in the adventure of living, and by this experience I become, in spite of myself, an interpreter of the Universe itself.

Some one has said that it is only the fool who never wonders, and that through the wonder of matter, nature, self, pain, beauty, and love, one comes to the discovery of God. Certain it is

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that, begin where it may, the search after an Infinite Being is a personal adventure. Not until we ourselves heard sounds, distant by half a continent, could we believe that the skies are literally 'full of speech.' Although the human intellect demands a logical foundation for belief in the unseen, one cannot be convinced through reason. Knowledge of the Infinite does not rest on scientific facts alone.

We may look back over our panorama and find cause for belief in a purposeful Creator; we may agree that as we find the Universe to be so vast, so orderly, and so bound together in all its parts, there must be some Intelligence that made it so; we may learn that there are certain facts concerning the heavenly bodies and living things for which no 'mechanical' explanation will suffice, and therefore accept the evolutionary explanation of Nature; we may come upon the marvelous evolution of life taking place under our very eyes in a minute organism as it changes from a formless, microscopic egg to a complete living fish, and realize that there is a Power beyond ourselves that moulds out of an infinitesimal life-germ a tree, a creeping thing, or man; we may watch seeds sprout, organisms divide and

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subdivide, the regeneration of lost parts going on among the lower animals, the healing processes in a human body, upon which all surgeons must depend, restoring wounds and repairing organs, and learn that living things are not machines, that in our environment there is LIFE to be accounted for in all its manifestations; we may assume that as this little fleck of earth on which we live is the same substance as Capella and Arcturus, so our minds must be of the same general sort as whatever minds there may be elsewhere in this Universe; we may, moreover, imagine that if we have seen intelligences of lower order than our own, the series may also run the other way; we may find an inconceivable complexity in nature, a balance, an adjustment, a working together of things toward rational ends which bespeaks a reason, a plan, a meaning for it all; we may analyze the nature of man, become acquainted with the mysteries of mind, come face to face with the fact that there is in human-kind an in-born 'sense of God,' follow in individual, tribe, and nation the universal search, and, surrendering to the urge within and without, bow down to the God of our fathers; we may even watch disconcertedly the everlasting hills going down-

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stream in the spring floods, but *until we become convinced of the reality of Spirit through its operation in our own lives*, we can have no workable philosophy by which to live life in its fullness.

In this scientific description of the worlds and of our own planet, we have seen an orderly unfolding according to certain known 'laws.' Some of these are so well known and so firmly established that the plans of civilization are based upon them. The scientist knows what to expect when certain chemicals meet, and on this knowledge is based all modern chemistry. The engineer knows what to expect when, with fine adjustments of balance, he builds with gravitation in mind; the farmer knows just when to plant seed and how to treat the soil to bring about the best results in crops — and so on through every department of industry. Man has also learned that he must adapt himself to his social environment, and to this end discover if there be any laws of cause and effect that have to do with mental processes. As the engineer raises his structures, and the farmer sows and reaps with due regard for 'natural law,' so we must acquaint ourselves with the laws of psychic phenomena if we are

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to work to advantage with our fellow-men. So, also, if we are to work in harmony with whatever Universal Mind there is, must we gain some sort of first-hand knowledge of the Invisible.

CHAPTER VII

MYSELF AND THE UNIVERSE

It is only when we deliberately think about it that we realize how much there is of mystery, ignorance, and maladjustment in our world and in ourselves. So much is taken for granted, so much assumed, and so much taught that has no grounding in fact, that the average mind contains a jumble of prejudices and misinformation which is so deep-rooted that it is difficult for fresh bits of truth to be assimilated. Most mental storehouses are in dire need of a house-cleaning.

Because we are by nature hopeful and trustful, we often accept theories and ideas that fit comfortably into our scheme of things, without much thought as to their actual validity. We think we think, but as a matter of fact we are carrying out the promptings of our subconscious mind, which has been accepting without question ideas handed down by a preceding generation, as well as suggestions directly or indirectly made by our contemporaries. If we can cut loose from this unconscious bondage

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under which we are accustomed to approach the problems of Life, perhaps we shall come upon reality from a fresh and independent viewpoint.

As we are the inheritors of all that has gone before in organic evolution, in science, art, literature, philosophy, and religion, receiving our heritage through imperfect human beings like ourselves, so do we pass it on tinged with our own personal bias. Herein lies our responsibility to future generations as well as to ourselves — making it a duty to think clearly and fearlessly of our relationship to our fellow-men and whatever Power there be.

Man with his composite nature makes of his experience in this life either a thing of beauty or of ugliness, as he sinks lower and rises higher than the less sensitive creatures by which he is surrounded, and the direction of his development depends largely upon what he considers to be his relationship to the Universe in which he finds himself. His success in life depends upon his interpretation of it.

But how may I interpret Life and the Universe when I do not even understand myself or the limited sphere of my own little world? Let us begin by learning something more about

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ourselves. Human nature is a medley of emotions, a very delicately attuned instrument, adaptable to two entirely different worlds. To understand the reason of our feelings and impulses, what lies back of our desires, may lead us into more or less immediate, intelligent coöperation with the Power that makes us what we are. It may bring us into practical God-consciousness, and, although not the only way, it may be one way that leads to purposeful self-expression.

The first step in self-knowledge is to accustom ourselves to the thought that there is more in ourselves than is immediately evident; that besides the simple and familiar states of mind arising from emotions such as hate, envy, revenge, happiness, hopefulness, love, there are deeply hidden, complex mental conditions that color our outlook, attitude, and actions. There is also a reservoir of past mental impressions almost submerging our present experience. Unconsciously we are being influenced to think, feel, and act in certain ways to-day because of what happened to us in earlier years.

Although we may investigate this storehouse of the mind, we discover that it is as difficult

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to define the line which separates the subconscious from the conscious as it is to separate in one's thoughts the surface of the ocean from that part which lies beneath the surface. We have become aware of the subconscious because of its very definite effect upon behavior.

We are told by the psychologist ¹ that there is in every one an instinctive creative energy which may be described as an outgoing stream. This stream, if obstructed by circumstance or environment, separates into the two apparently divergent channels of sex, and creative activity of some other sort. The creative activity not directly associated with sex may take the form of musical, artistic, or literary expression, social service, business, or personal devotion of various kinds. Either channel may afford normal outlet for the creative energy, but when one or the other is blocked, serious results may follow unless it is possible for the individual to find sufficient satisfaction in the one available outlet.

One has only to read history to discover that most men and women who have done things of importance in the world have been endowed

¹ Geraldine Coster: *Psycho-Analysis for Normal People*. Oxford University Press.

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with great creative energy which, through 'sublimation,' or divergence into a channel other than sex, has been utilized for high aims and altruistic purposes. The majority of saints have had a 'past.' Probably the most vital questions that individuals of all ages have had to meet have had to do with the direction, control, or sublimation of this strong stream of life.

And so we see Man's divided nature outstretching its environment as, unsatisfied, it climbs beyond it, or, confused and dismayed, turns backward upon itself. Beneath the surface of our social fabric there are hidden forces turned backward at their source, sullen, watchful, ominous — breaking forth now and again here, there, and everywhere, a power, a claim, a challenge not to be denied.

There are in every individual of whatever age or sex influences working at cross-purposes to the conscious Life which, once recognized and understood, may be directed and controlled to great advantage to the individual and those with whom he or she is associated. Digging deep down into the sub-strata of the individual, as the geologist digs deep down into the strata of the earth, the analyst brings

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up into the light repressions, conflicts, complexes, prejudices, and defenses of which the subject has been totally unaware. By this process of revelation an obstructing mass is often dislodged, liberating the real Self and relieving the tension of years.

As we come to know more of this hidden influence and the need of self-expression, we begin to wonder how much any one of us may be held accountable for our thoughts or behavior. If, added to inherited tendencies, there is this background of the past overshadowing us, what chance or place is there for individual decisions? If repression works havoc, why should we continue to control our natural impulses? Many are discovering through science and psychology that things are not in reality as they have been painted by an older generation. Love of Life is forcing itself up out of the débris of the centuries and proclaiming itself to be the greatest thing in the world. There are those who are crying in our streets: 'I will not follow the beaten path. I will go where there is no path, and leave a trail.' One thing is certain, old landmarks are gone, old barriers down, and we must make new paths for our feet.

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But 'there is no new thing under the sun.' Although there is a suspicion on the part of some, who observe with apprehension the trend of social developments, that the 'New Psychology' does away with the idea of sin and lowers moral standards, through psychological knowledge we are discovering more of sin in human nature than is depicted in the Bible story of the man and woman in the original Garden of Life — if by 'sin' is meant a turning aside from the purposes of the Creator. If we would behold a cloud of witnesses to human weakness, we have only to remove the veil from our own inner life through the 'deep analysis' of the psychologist; we have only to learn the significance of dreams, those phantoms of the night which disclose like grinning gargoyles the repressed thoughts, impulses, and desires of our daily life. If we would know what we have to guard against in our personal reactions, we have only to know ourselves as we really are, and not as we should like to think that we are, which is our usual point of view. Psycho-analysis shows us human nature functioning in blindness, weakness, and failure; it brings up into the light hidden obstacles to development, revealing

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the interdependence of processes and experiences.

A psychiatrist was recently asked what made it possible for him to know, almost at sight, when a new patient came to him, what was the nature of the trouble that brought him. His reply was that there are three types of difficulty which create psychic disturbance — ill health, financial worry, and sex-conflict. Each has to do with the body, but all react on the mind and nervous system. 'It is an easy matter,' he declared, 'by a process of elimination to decide pretty quickly whether the individual before me is suffering from physical, economic, or social maladjustment.' There are also three attitudes of mind to be met with in psychological treatment: there are those who have no interest in discovering the truth about themselves, or about Life; those who hold their own opinions and prejudices in defiance of all counter-suggestion; and those who willingly and intelligently seek a legitimate way out of their immediate situation.

Of course the secret of successful adjustment to Life is to attain a right attitude of mind. The individual is then set free. And as we have already said, a happy and successful life is not

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beyond the reach of any one of us, or dependent upon knowledge in any of the many branches of science. This freedom may come in an instant, or it may come at the end of a long period of reëducation, and when it does come, it is in the nature of an awakening to personal responsibility and power.

Let us look once more at the individual making his adjustments to Life. In babyhood the body and mind grow fast. The infant vegetates like a plant. It eats, sleeps, and moves automatically. With early childhood comes the active functioning of the five senses, the perception of internal feelings and external things. With later childhood begins the intuitive sense of responsibility in making right choices, and an increasing appreciation of moral values. With adolescence enters in the realization of full attainment of responsibility for one's conduct, conflict arising from an influx of developing vitality and strong emotions, reflection, and usually revolt against existing conditions, restraints, and authority.

As one grows older, he learns that he must conform to the social structure as he finds it or be swept aside, and so discovers how to make social adjustments. It becomes necessary

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for us to adopt the modes and customs, the dress and habits of the particular community in which we live. So are we expected and compelled to obey certain laws which are necessary for the order and safety of this community. But as these conventionalities have in great measure been influenced by the locality, climate, and past history of the country in which they operate, and the laws are based upon the limitations, not the perfections, of men and women, it is very difficult for us sometimes to see any reason for the many restraints by which we are surrounded. We fight inwardly, if not outwardly, for our freedom and create secret conflicts for our later undoing. A little unselfish surrender to the needs of those less strong than ourselves might keep our attitude sweet and open, and our imagination quickened for the discovery of legitimate means of self-expression.

But as it is difficult to attain the highest ideal of beauty in the world, so does it require the whole of Man's endeavor to live in accordance with his highest ideal of altruism, which presses upon him from within and without, making him remorseful when he falls short of the standard he has set for himself. Conscious

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as he is of moral obligation, he is nevertheless constantly being kept from its fulfillment by his own selfish desires. Because of the two-fold nature of Man, that causes him both to 'love and to hate his brother,' he is torn by a complexity of appeals. The paradoxical nature of the whole of Life is apparent. He who embarks upon it must face it all, the bitter and the sweet, the love and the hatred, the darkness and the light, and it appears to be a more and more complicated affair the longer we look at it.

The result is a highly organized society for the most part made up of groups in a maze trying to find their way out of difficulties, restrictions, and situations which they do not in the least understand. Each individual is trying to harmonize Life as it is being experienced by him with the generally accepted belief of what Life is, for the most part without much success. There are two extremes to be avoided in attempting to adapt one's self to Life as one finds it — that of trying through independent thinking to create one's own environment without due regard for the facts of Life, or by a surrender that has no compliance in it to become artificially adapted to

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conventional surroundings. When real trouble or temptation comes, the former find themselves in a tangle brought about by the basing of their reasoning on false premises, and the latter discover that they have nothing at all in the way of a philosophy by which to meet the issue.

It is not strange that there are many individuals who, because of the very sensitiveness that sets them apart from the lower animals, find it so difficult to adapt themselves to the Universe into which they have been born that they find neither happiness nor success. Having tried in vain to interpret Life in a way that would lure them on to greater achievements, they live a blind and uninspired existence, or taking things in their own hands choose death, rather than a life which they cannot understand — a game which they cannot win.

The front pages of our daily papers reflect some of the scenes from the backwash of human life which is adrift over the entire world. While within our reach, in spite of poverty, ignorance, sickness, mortality, there lies the great, beautiful, natural world of out-of-doors that speaks of God as plainly as any handwriting on the wall; and the deep, resounding, responding

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inner world of the spirit with which, if we are honest with ourselves, we must admit we are, to some extent, acquainted.

Our own individual place in this universe is not far to seek or difficult to find. Although our uniqueness may be the cause of most of our difficulties, in the long run the glory of our existence is our individuality, and we shall find our niche if we seek it with patience. Because there must be conflict in order for us to have a world at all — the attraction and repulsion of electrons, regenerative and degenerative forces at work, love and hatred, repression and release — Life has in it great possibilities of tragedy and failure, but equal possibilities of adventure and victory.

Those who seek will always find, and those who venture will at least blaze the way. By faith has everything been achieved since the world began, and the very cycle of our hours and days and years is a symbol of hope and assurance. Each glimpse of Truth we perceive must be perfect as far as it goes, for every fragment of the Universe is perfect in itself. We must take what we can assimilate, and not be dismayed if we cannot immediately grasp or absorb or accomplish all. On even a small

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portion of Truth one may travel far. And this traveling bit by bit by the light of Truth is our journey through this world, over this Bridge of Life, in search of the satisfaction for which we yearn — the fuller expression of the divinity which is within our Selves.

CHAPTER VIII

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As the turning of vegetation toward the sunlight is a universal phenomenon of nature, so the tendency toward self-realization, or perfection, is a universal procedure, not limited to any bounds of time or space. It has been going on everywhere, we have reason to think, since life first appeared upon this planet — not always in uninterrupted progression, any more than organic evolution has been steadily and uniformly progressive, but in alternating waves, as in any evolutionary process. Progression and retrogression are all about us in every department and phase of living.

Those leaps in the dark toward completion, or perfection, that have most effectively advanced the development of the race, have taken place at widely separated intervals of time, and in localities far distant from one another. We find culture of the highest order in the most ancient civilizations, and groups to-day as unenlightened as the earliest that we know. Some of the greatest characters

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lived before the Dark Ages, and there are individuals in our own time as disassociated in consciousness from the Infinite as were some of our ancestors in the primeval forests. It is very difficult, therefore, to give any chronological account of the development of the religious consciousness, to think in terms of time regarding the relationship between Man and his Maker. Once again we realize how little we actually know about the past. And yet out of that past come rays of light, broken fragments, reflections, suggestions which help us to form a fairly accurate idea of prehistoric times.

The chief sources of information concerning the ages that are gone are the remains laid down by time in the geological strata of the earth; here we find bones and implements, coins, sculpture, pottery. There are also remnants of long-lost constructions, such as mounds, monuments, and tombs, some of them containing inscriptions, paintings, or manuscripts, each throwing a side-light upon the nature of the beliefs, occupations, and accomplishments of other days. Although we are still left very much in the dark, a few definite facts emerge.

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One of these is the certainty that nowhere has there ever been found any race or tribe that has not had some sort of religious cultus. As the instincts of hunger, fear, and sex-expression are so entrenched in man's nature as often to overpower, when aroused, both intellect and will, so also the tendency to penetrate the realm of the unseen is a strong fundamental instinct to be reckoned with in the life of the world.

The recognition on the part of Man of a Power, or powers, outside himself was not more strictly a movement toward the Infinite, than was the discovery of fire or metal or the means to the end of livelihood; or the first crude attempt to depict upon the cave-wall a likeness of what was seen in field or forest; or the response of the body and mind to rhythm and tone, shade or shape or texture; or the emotions of wonder and awe, or fear before the cataclysms of Nature, or the phenomenon of birth, or death or dream-life; or the inclination to investigate the mysteries of earth and sea and sky. Even the way of piety, although it may be a more direct route to a conscious, personal relationship with the Invisible, may not be literally a more proper approach to

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Ultimate Reality than the way of beauty and enlightenment. However, a survey of the development of what may be more precisely termed the religious consciousness is of importance in any investigation of social phenomena. Man's nature seems unconsciously to crave the satisfaction of beholding all aspects of the Infinite, but until he discovers that Infinite to be Personality raised to its highest expression, there appears to be an imperfect appreciation of moral values, and, of course, no community of spirit between Man and his Creator. It is evident that through the expressions of prayer, worship, service, great satisfaction is found, only the abnormal or defective being wholly devoid of moral obligation.

Another great discovered fact is that there is a 'unity that underlies all difference.' For that unity we must look in order to have a sympathetic understanding of the many forms in which the religious consciousness is expressed. The normal trend of development in all fields is toward unity. The heavenly bodies move in unison, and there is no real discord in nature, only a succumbing to conditions on the one hand, and a surmounting them on the other, coöperation, wherever

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found, furthering progress. This universal tendency toward equilibrium, completion, perfection, reveals the fact that all things are engaged in a universal search after satisfaction which is far from being altogether physical. Compared to it the struggle for existence in this world, and self-perpetuation through sex-expression, are not more strong or persistent.

‘An unbiased consideration of its general aspects forces us to conclude that religion is everywhere present as a weft running through the warp of human history. It expresses some eternal fact.’¹

The history of religion is the story of man’s attempt to satisfy his soul’s unrest. The Bible has helped to enlighten this troubled soul of man. In the natural course of events there had to come a recognition of righteousness, law, and love as corrective forces in the world. It was inevitable that the story of the Garden of Eden should have been written, and that back of that ‘stately poem about God’ there should have been centuries of fable, myth, and legend, stretching into the past, which dealt in an even more elementary manner than the Hebrew writers, with the funda-

¹ Herbert Spencer.

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mental problems with which the mind has wrestled since speculation first began.

Most beginnings evade discovery and analysis, and it is not easy to discern in the fears, dreads, and morbid imaginings of the savage, in the fawning, flattering strategy of propitiation, the origin of religion. Man's first impetus Godward carried much of Self with it, and had much of Self behind it, but it was, nevertheless, a first step toward perfection, for it led to the notion of God-likeness. This must needs be so. Early man is always nearly helpless in the face of Nature. He can pound one stone with another and make some sort of tool to cut his firewood or build his rude shelter. He can shape bone fragments or flint chips into weapons for killing his prey, or hooks to catch his fish. He can scratch the ground with a stick and drop in seed. But whether the fish will bite, or whether the animals he hunts will be abundant, or will disappear and leave him to starve, or whether his seed will or will not succumb to storm and drought, are all matters that he cannot in the least control. Whether these fall out as he desires or not determines finally whether primitive man does or does not live through the next year.

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Therefore, necessarily, have early tribes and peoples looked to some sort of divine beings for the help that they could not find elsewhere. If Nature did not send them food, they went hungry. If Nature did send them rain, they got wet. Always Nature, strong and uncontrolled, dealt with them as it would. Therefore, in the past have outdoor men, savages and sailors and hunters and soldiers, tried to discover a God who controls Nature, and who, if appealed to, will control Nature to their advantage. It really is not the least of our troubles now in the field of religion that we have learned, in so large a measure, to control Nature for ourselves. We get our food by telephoning to the grocer. Cold and wet merely send us indoors to a snug fireside. Dangerous wild creatures and still more dangerous human enemies most of us know about from books alone. Only in the few great crises that come years apart do we modern men and women ever face naked reality as men before us, up to within a very few centuries, had to face it every day.

It is, perhaps, because of this difference between ourselves and our early ancestors that we of to-day tend to neglect religion, or

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make of our religion a rather empty set of forms. Our dependence upon God is not so apparent to us as it was to our forefathers, even of more recent times, and when something really does happen to us, as it always does sooner or later to every one, we have nothing to fall back upon. Often we even become bitter and turn against the God who allows such things to happen, when, if we had only taken thought, we should have been prepared and fortified by the realization that at any time almost anything in the way of disaster may happen to any one of us; and yet it is possible, in spite of this, for men to have a philosophy which includes in the scheme of things a beneficent God.

'Students of comparative religion tell us that there are three stages in the development of the religious consciousness: the recognition of a Power or powers beyond our control, a feeling of dependence on those powers, and a seeking to enter into relationship with them. There are also 'three great stages in religious thought . . . magic, morality, and Personal Relation.'¹ These appear and reappear throughout the course of religious develop-

¹ T. R. Glover: *Progress in Religion*.

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ment of peoples, and may be found to-day within the extremes of religious expression.

As the pioneer settlers of the world were discerning enough to seek out the fertile and sheltered regions along the river valleys for the maintenance and protection of their flocks and herds and tribal life, so they early became aware of the necessity of allying themselves in some manner with the powers that be. Out of this self-centered desire to be served grew rites and practices that bear little semblance to spirituality, but are nevertheless the expression of this first reaching out after the intangible.

Even back of tribal life, we may be sure, lay centuries of vague imaginings, less reflective than emotional, which peopled woods and fields and waters with spirits symbolic of the natural forces and elements manifest in the world of nature. As the savage toiled to secure food and shelter, and fashioned weapons for defense and hunting, so he must have sharpened his wits in an effort to cope with the mysterious environment which he so little understood. Feeling and fancy led him to do strange and fantastic things, even more unrelated to the practices of our day than

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tribal ceremony, and yet not altogether divorced from the religious rites and ritual of our time. The heart, the blood, the breath, the shadow, dreams, carried a significance; fetishism, totemism, taboo, all the intricacies and ceremonies attaching to magic, had their roots back in an unknown past, whose secrets are being investigated, indeed, but will probably never be fully revealed.

One must not forget, in following the most significant steps in Man's long search for God, how immeasurably long this search has been. In retracing the steps of our physical journey, we go back to the jungle. So also must we go back to rude altars and strange practices if we would retrace the way of our spiritual pilgrimage.

Most people, even the most primitive in other ways, have often most elaborate religious cults that really play a larger part in their lives than a civilized man's religion commonly does in his. Most probably, therefore, Man's conscious search after God, and his developments of religious forms and practices, actually began about as soon as he became human at all. At any rate, we know that Neanderthal man, who became extinct something like twenty

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thousand years ago and was not even of our same human species, nevertheless must have had some sort of an idea of a future life, for he buried his dead ceremoniously with tools and weapons and ornaments on their graves. Some sort of religion, then, is as old as anything else that belongs to us, and this cultural tendency distinguishes Man from the lower animals.

For most of mankind, the religious search has resulted in all sorts of magic. Men have supposed that many different forms and ceremonies and observances and prayers and sacrifices and rituals have power to influence the Almighty to do something that otherwise He would not do. Often, indeed, is it thought that the magic rite compels Him to act against His will in spite of Himself. More often the magic is of the 'sympathetic' type that aids the sun god to rise, or the vegetation god to grow crops. All magic is very childlike, but since these 'nature religions' are spontaneous and universal, they are the soil out of which all the higher religions have grown. And since religious cults are the most conservative of human institutions, it has come about that nearly all the higher religions of the world have retained some trace of the universal magic.

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It is not strange that Man's first ideas of divinity bore some relation to those elements or objects most familiar to him, the sky, sun, moon, dawn, winds, and fire. The gods were DEVAS (bright and shining), and everything associated with light and heat took on a divine aspect. The Hindu worshiped the powers of light. The sun god reigned over all, and was to be propitiated by offerings placed upon the hearth, and by the chantings of Vedas; the pouring out of libations and praise.

It is natural that early man, groping his way through the maze of Life, should visualize the powers of light and darkness, of good and evil, in such a fashion as to relate all natural objects to either one or the other type of manifestation, thus building up a dual conception of the Universe. The crowing cock, the herald of the dawn, becomes identified with the sun, light, beneficence; while the mole and other underground creatures are relegated to the realms of darkness and evil. Certain prejudices appear, out of which develop the idea of taboo, 'uncleanliness,' and the deadening influence of 'caste.'

Many stages of evolutionary growth succeed one another, as Man passes from that of fear,

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when propitiation becomes his aim, through all the intermediate stages between that and the worship of a God of righteousness for his own sake. In the beginning Man plays, as it were, with the idea of Divinity, making of the gods puppets of his own imagination. The common acts of Life are performed under the influence of superstition, magic, and sorcery. We find science, art, literature, music, dancing, almost exclusively dedicated to religious practices, many of which are materialistic and sensual in their appeal, having little relation to morality.

In the midst of culture and refinement of a sort, there often stand out with glaring crudeness the most primitive notions of Divinity. Even the gods and goddesses of later Greece and Rome, those centers of culture, are but supermen and women, with the weaknesses of mortals, symbolizing merely the forces of nature or the arts and crafts of men. These notions are reflected in the national life, whereas we find a people coming out of the desert with high ideas of God and morality. We may discover that the most civilized communities, so called, are not necessarily the most religious nor, in fact, actually the most

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civilized in the proper sense of the word. Both intellect and emotion enter into the universal pursuit of the Infinite by the finite, and it appears to be a performance as inevitable and evolutionary as any biological process.

All primitive impulses and emotions are universal. All that is found in any group of savages is existent in ourselves, for the primary instincts have not changed, and men are discovered to be brothers by the anthropologist as well as by the theologian. Any deep emotion draws human beings together — fear in the face of catastrophe, fury before a common enemy, sympathy, gladness, gratitude — because, in the last analysis, we are alike in nature, outlook, and expression. Our being 'part and parcel of each other' is an argument for that tolerance which alone makes the history of religion intelligible.

It is a sense of want that sends men forward. A state of unrest and dissatisfaction is at the bottom of every advance of the race. Man has evolved beyond the lower animals through his increasing self-consciousness, and a longing after that 'other Self' whom he has come to call 'God.' This human sensitiveness has enabled him to control instinctive impulses

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and direct thought and action along moral and ethical lines.

As the first living things were too jelly-like to make any impression on sand or stone, so anything so intangible and elusive as God-consciousness left its only impression, before books were written, in the hearts of men. Gradually traces became discernible, scattered fragments, bits of truth, like flickering lights coming through the darkness of ages; individuals rising up and going forward, as torch-bearers carry on a flame, only to be beaten back by the masses. Then darkness again for a time. But we find that the bit of truth lives on to reappear, and perhaps to attract more truth to itself.

It was Carlyle who said, 'The history of the world is but the biography of great men.' One cannot enumerate even the outstanding figures of any single generation on this globe; coming from all walks of life, all nationalities, all fields of human interest, we know them to be those who have carried forward the development of the race along the many pathways of human expression. One by one the solitary geniuses of the world have gone forward in single file, pointing the way for the masses

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to follow after. Looking upon these men and women of history — poets, painters, dramatists, novelists, historians, musicians, scientists, statesmen, philanthropists, and all the rest — we realize that the greatness of each lay in the degree in which he or she was able to grasp and to reveal or depict for others some portion of Truth. Their interest as personalities lies in the fact that each in his or her own peculiar way has expressed to humanity, through art, music, literature, statecraft, prophecy, and service, a bit of reality — touching the intangible, glimpsing the invisible, through the operation of spirit. Each has been an interpreter in his own way of some portion of Life itself.

On the whole organic evolution has proceeded in definite waves of progression. This progression has been the result of a variation of types at indefinite intervals of time. The exceptions to the rule have marked the beginning of a differentiation of species. So also in the various fields of human progress, individuals breaking away from the established order mark the points of new departure and establish new schools of thought.

‘Progress has a kind of leap in it . . . in

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Nature there are sudden appearances which in some mysterious way have for a long time been in preparation and which quite suddenly burst upon us as *faits accomplis*.¹

In the history of religion, as of nations, we find the 'man of the hour' — the prophet appearing in time of need to regenerate a people, to guarantee the progress of mankind. These leaders, seeing far over the heads of the masses, have been the torch-bearers, the signal towers, the saviors of the world. The followers of each see in their own particular prophet the divinely inspired One, and the religion that he has founded becomes their Way of Life.

There are certain fundamental ideas common to all organized religions, for all represent the reaching out of the Spirit of Man toward the Creator. In spite of discords there is a key-note of similarity in them all. In each there is a recognition of human insufficiency, a human longing for the Infinite.

The Hindu says of the Source of Life: 'He is the invisible, intangible Being, without origin, without distinction, without eye or ear, without hand or foot, the eternal, pervading, omnipresent, subtle, inexhaustible Being,

¹ Knowlson: *Originality*.

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whom the Sages behold as the source of the universe.'

Zoroastrianism: 'Thou First Great Thinker! whose splendor pervades all lights, who through His Intellect is the Creator of all, who supports righteousness, and the good mind. Thou Spirit Mazda, Thou who art ever the same.'

The Hebrew: 'The Lord our God is One God.'

The Christian: 'I am Alpha and Omega, the beginning and the end, the first and the last.'

The Mohammedan: 'Thou art absolute Being; all else is but a phantasm.'

In making an examination of any particular species of plant or animal, one looks for the best specimen that can be found. One does not put a bruised petal or a broken wing under the microscope. Before attempting to determine the purity of drinking-water coming from any particular source, one does not dip one's cup into the muddy pond where the spring takes its rise, but allows the water to flow into it at a point beyond the filtering processes of the reservoir, where it runs clear. In attempting to discover the nature of the

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Infinite, it is well to turn our attention to the highest expression of the Infinite upon earth. But we are dealing, in this book, with Life as a whole, and with humanity passing across the Bridge of Life with measured tread, the tread that allows for no long stopping by the way. We have here all kinds of men and women, representatives of all nations, all classes and all creeds. Of some, Mohammed is king, of some, Buddha, of some, Christ, because in the blending of humanity and divinity, in the evolution of the religious consciousness personalities are developed that stand out in striking contrast to the mass of human-kind. About these personalities there clings, in proportion to their divinity, an atmosphere of other worlds. And in their lives there is made manifest the enlightenment and power of other degrees of experience than common men have known, for the merging of humanity and divinity may override known laws.

We generally think of the search after God, or an Infinite Being, as carried on along one line of experience, expressed through definite religious practices. Let us rather conceive of it as taking place throughout organic life from

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the moment of its first stirring into being, expressed in the very function of living. Wherever there is life there is growth, a reaching out, a progression. Vegetal and animal life evolves, seeds germinate, natures unfold. Symmetry, balance, health, wisdom, beauty, goodness, love, may represent the revelation in creation of the spirit of the Creator, the turning again toward God of the things He has made.

Religion then takes its place as one of many modes of expression of God-consciousness. There is only one sense in which religion may be considered to be the sole pathway to God, if we assume that Man's religion includes his total reaction to Life, if we mean by 'religion' that which issues from the deepest region in a man, for then we shall recognize the sum of his activities as a reaching out toward the Source of his being.

With this interpretation placed upon it, human life appears to be the experience in time and space, of human beings reaching Godward. More than this, Life in its every aspect, in all its many-sidedness, is nothing more nor less than the searching after union with the Invisible on the part of every living thing. If

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we would trace this universal quest, we must not only take note of the phenomena of the material and physical worlds, but we must investigate all fields of human endeavor — Zoroaster, Buddha, Moses, will loom large, but so also will Copernicus, Beethoven, and Michelangelo.

Following the threads that guide through this interwoven web of Life, we find them in the idealists, who have been the real leaders of men. For although in our everyday living we are dependent upon the farmer, the engineer, and the chemist, there is in human nature a deeper need even than that for bread. To satisfy our inmost cravings, we must have, in some form, beauty, justice, and love, something to admire, to rely upon, and to dedicate ourselves to in our journey of exploration.

We may not all seek, and we may not all find in the same way, nevertheless, by their devious, winding ways, men do reach God. We cannot escape His Power, but draw upon it with our every breath. There is an enlightenment, however, that comes from conscious union with the Invisible, that makes all things new, that overcomes the world.

CHAPTER IX

THE CALL OF THE SPIRIT

EVERY intelligent person recognizes that there is a life principle, a mysterious force of evolution, that maintains the balance of the Universe, permeating what we call 'time.' We have already assumed that from this starting-point of the life principle as it appeared somehow, somewhere, some time on this earth, man has come to his present stage of development. Probably we shall never be able fully to comprehend how this first appearance of life came to be. That we are unable to do so should not disturb us. The ant at my feet is, in the same way, incapable of comprehending the mystery that I am, towering above him. I am outside of his world. May I not be just as much cut off from that which is beyond my consciousness by reason of human limitations?

We recognize this power called 'Force,' or 'Fate,' or 'Life,' or 'God,' at work everywhere. It has a quality of wisdom which so transcends man's connotation of that term that there should be another name applied

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to it. In its wise, sure, silent, constructive effect upon events, it has a concentrated quality that is PERSONALNESS. As in algebra x represents an existing but unknown factor, so in the Universe and in our lives there is this actual, composite, spiritual factor of personalness which is represented by the letters G O D. But because men so misinterpret and misrepresent truth, even this word has lost its meaning for many, for it is associated with things far away from real, everyday living.

In attempting to find a better word, however, we discover that we are seeking to name the unnamable. No name can satisfy even our inadequate conception of this Answer to Life. Our thoughts must transcend language. This Unknown Factor is invisible and intangible, but not unknowable, for by some It is known in a very real way, although this knowledge cannot be handed on to others, or explained except, again, in very inadequate terms. Because of this clouded vision and limited understanding on the part of Man, he and his brother Man enter into disagreement and dispute that sometimes carries with it bitterness and hatred. If our search after truth is right and reasonable, each one of us is entitled to

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our own interpretation of things as we see them, provided we also leave our brother free to make his own interpretation.

The nature of God has always been a subject of heated debate. The interpretation of that term, or of the Power that IS, may reach from the 'blind fate' of the atheist to the 'Father' of Jesus Christ. It may be represented as Force pure and simple without personality, or Chance, or Destiny. It may be thought of as a subjective quality, such as Power, or Wisdom, or Love, or it may embrace all three. It may be Personality raised to the *n*th power. Some persons, because of early impressions, hold prejudices which are difficult to overcome. The phraseology of the pulpit has become a barrier to their understanding. There have been shocks and strains that are doing their subconscious work. For them a new language must be found—a new approach made. To others this may seem irreverent and unnecessary. Once more tolerance and brotherly love are needed.

This eternal factor in Life, the idea of God, has been crystallized by many forms of organized religion. To most readers of this book it has come by way of the Christian Church,

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the 'greatest institution the world has ever known.'¹ If this great body of idealists retains in its expressions of faith something of magic and superstition, of primitiveness and error, it is not because men and women are gathered together in the name of religion, but because man retains within himself even to-day traces of ancient savagery.

The Church, the Federal Government, schools, hospitals, all exist to serve an idea, but because man has failed to express fully the divinity that is within him, they are one and all inadequate and imperfect.

The Christian Church exists as the expression of the most fundamental of all ideas — the relationship of Man to the God of this Universe. In its functioning it touches human life at all points from the cradle to the grave.

At its center glows a divine flame, a Personality, symbolizing the character of God. About this center at times there forms a shell of Phariseism or hypocrisy which is so rigid that the Spirit stands in danger of becoming altogether imprisoned, but so long as that living flame remains at its center, the Church will live and be a transforming influence in the world.

¹ Willard L. Sperry.

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Here was a Personality so intensely God-conscious and aware of the Divinity that was within Himself that He lived divinely the Life that was set before Him. The call which came to Him was perhaps no different from the call that may come to us if we listen for it in the silence, but He reacted to the call with such an immense degree of responsiveness that He lived in this world of ours a superhuman life.

He was credited with being allied with the metaphysical forces of the Universe. And it is said of Him that He told the ordinary men about Him that they could do even 'greater things' than He. Must not the full significance of the life of this Divine Man be that for us It stands through the ages as the living symbol of what any man might accomplish?

This thrillingly alive individual humanity has associated almost exclusively with the death-masks portrayed by primitive art — an art having for its patron a highly conventionalized Church which frowned upon individualism almost to the complete exclusion of the human. This conception of Jesus Christ may have had much to do with the obscuring of the spiritual vision of the average man and woman. Christ is here, not the Christ

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of the fields and highways, the lake-side and the mountain, but the sacrificial victim of an unbelieving world. We must not substitute the one portrait for the other, but guard against losing the vision of Him as the greatest Interpreter of Life. There are many who dare to believe that the words credited to Him carried with them the true conviction that Man has within him the power to reach the perfection of this Son of Man.

Certain it is that this God-Man has given to men the power to rise to heights of God-consciousness and to accomplish feats of spiritual daring even in this present day. Conscious contact with His Spirit has revealed to individuals in every age the truth of His doctrines, and the consistency of His life and death and ever-living presence with all other revealed universal truth.

But the actual contact must be made, the 'works' must be done, the sacrifice must take place, not of *personality*, but of *selfishness* (the surrender, not of the *Ego*, but of *egotism*), before miracles happen. Life must be lived in harmony with the Divine Law of Life which speaks to us through the material, physical, and spiritual worlds saying: 'No-

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thing quickens except it die.' — 'He that loses his life shall save it.'

Until we have recognized this Law and accepted it as one of the fundamental laws of the Universe, our faith will not be sufficient for us to test it actually in practice. Every relationship in life calls for a certain degree of self-sacrifice.

'The milk-white heifer's life must pass
That it may feed our own,
As passed the sweet life of the grass
She fed upon.'

When my selfishness surrenders to a larger demand of the Divine Will, I put aside the bonds that limit me and gain a freedom unguessed before. I am at rest, for I have become expanded and released because in conscious union with Universal Spirit. Personality thus becomes increased, not diminished — through obedience to law its functioning is made more and more complete.

And so may not Christ Himself have said of the Bridge of Life, 'Pass over it, do not build upon it'; because He knew that it is but a day's march to the better side of the River of Eternity, and that He passing over it was able, through conscious contact with

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Ultimate Reality, to overcome the Universe itself?

There are those who find their inspiration and release by way of organized Christianity, either Catholic or Protestant; those who are in communion with Divinity independently of any church, and many in all lands who, finding themselves unable to accept religious doctrines or to approach God through conventional channels, do not consider themselves and are not considered by others to be religious, and make no further systematic attempt to become more conscious of Him. This group includes many of the rarest spirits, many of the leading minds in the community, many a saint and many a sinner, many a genius, many of the men and women on the street whom the Church longs to influence, who are not touched by her appeal.

But so accessible is God that even those who believe they do not know Him may be the most alert to note the promptings of the Spirit. In the most unsuspected and unfrequented places is He incarnate. The bruised petal is still part of the rose, and the broken wing, of the butterfly; the turbid stream found its rise in the clear spring; and every man

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is born of the same spirit as all the prophets of God.

We must believe that an avenue of approach is ever open between the soul of Man and the Spirit of God, and that, although our own particular form of faith is one way of approach, it is not necessarily the only way. The Great Thinker is infinitely resourceful, and even throughout organic life where one method fails, another is utilized. Deep calleth unto deep. The basic principles in all great religions are interrelated — their prophets echo one another. The commandments of a Moses are obeyed, not because they have come through a Moses, but because they are eternally necessary for the progress of mankind. Ultimately we shall find a unity and a harmony underlying all difference. If we learn nothing else from Nature, we discover that there is a diversity of types, species, coloring, and form. And yet every fragment of the universal order, however divergent or insignificant, has its place and part in the whole. Let us discover, if we can, what are the essential elements of God-likeness, for until we come into harmony with the Spirit of the Universe, we shall not be able to perform our part in the great Drama of Life.

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Into the innermost depths of every individual soul at some moment of experience there does actually come the suggestion of the Divinity of Man, and in proportion to that individual's responsiveness to this suggestion does that person spiritually unfold. As in the quiet of stagnation, we believe Life itself first stirred, so this whisper may come far below the surface of consciousness at some moment of unawareness — perhaps at an instant between sleep and awakening, or it may reach us in a moment of vivid God-consciousness.

This whisper is akin to all the subtle influences that enter our lives by the way of the 'subconscious.' It is related to those promptings of the Spirit that tell us the difference between right and wrong, those momentary urges that demand that we go forward rather than backward, that save us even in moments of apparent powerlessness. Something is being demanded of each one of us, and we alone are aware of this demand. It may be thought of as an actual call of the Spirit, insisting that we each accomplish that which we were sent into the world to do. And it is through this demand made upon us that we become a part of the creative processes of the Universe.

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To return to the everyday experiences of living. We are justified in believing that the laws of chemistry and physics operate uniformly wherever there is matter, and that cause and effect follow one another in just as unvarying a way wherever there is mind or spirit. Whereas motion, gravitation, radiation, condensation, are factors in the evolution of the sun and its satellites, so consciousness, emotions, nerve reactions, and other psychic phenomena are potent in the development of personality and character, human experience in its fundamental aspects being the same in all ages, the world over.

As we have seen, following closely upon the discovery of our Self as an entity apart from all other entities comes the sense that there is somewhere about one's self, and in one's self, a Power or Personality supremely apart from and beyond all others, as the savage recognized the presence in his world of devastating forces, on the one hand, and of benign influences on the other, touching his practical, everyday life, affecting his crops and herds and his very existence, so men of to-day find in the material world evidences of unseen forces at work. But strange to say, some modern men

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and women have not advanced far beyond the savage in their conception of spiritual realities. It is still very difficult for you and me to have any correct idea, or any intimate knowledge, of unseen forces, even those upon which we depend in our common household work or our recreation, such as electricity, radio-activity, or gravitation.

In order to form an idea which may help us to comprehend the function of the spiritual, we must use our imagination, and draw an allegory: I like to think of Life being given from a unit source to all particles and species of this Universe, the unit source becoming the 'Master Switch,' and being always and eternally in operation.

Have you ever seen in a vast electrical plant a switchboard carrying immense electrical current, fused according to the demands made upon it? All this current is controlled by the master switch. The auxiliary switches are subordinate to that. In Life the Master Switch of the Universal Switchboard is forever sending out its current, regardless of demands. How much of the universal current is put into operation depends upon the capacity of the individuals drawing upon it.

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The ancient Greeks and other philosophers up to the eighteenth century believed that this Universe, reduced to its lowest terms, is nothing more nor less than air, water, fire, earth, and that from these four everything springs. From their point of view, it might be said, 'I can conquer air, distill water, kindle fire, and mould earth, but although I myself am essentially air, water, fire, earth, I cannot create any one of these.'

As we have already said, there are upwards of eighty elements in the Universe. Every human organism, without exception, contains at least a dozen of these, any one of which Man may combine with another, but none of which he can create.

These facts make me suspect some hidden mystery, an intangible power. I turn to other evidences of intangibility — electricity and radio-activity. I cannot create either of these, although I am a conductor of both. Even those dozen or more elements contained in Man are but different aspects of electricity. Do I not become A UNIVERSE IN MYSELF, because through me all forces operate according to my capacity to transmit that which can have expression through me?

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What is electricity? I do not know. Do you? I am satisfied that *IT IS*. I am glad that it is *A PART OF ME*. I cannot take hold of it, I cannot see it, but its power is mine to use. Radio-activity in its recent developments has proved that sound is a traveling element. But again an intangible quality appears. I gradually begin to realize what a storehouse of power *I am*. There is nothing egotistical in the thought that all possibilities reside in me, for the source is not myself — I am merely a conductor, as a radio instrument is a conductor of sounds traveling on ether waves. Moreover, the possibility is open to me to be a sending station in myself as well, transmitting power. I carry this thought farther, and recognize not only myself as a unit of God-energy, but this God-energy, this Divine Wisdom, this Universal Beneficence, as the explanation of everything that is. Life then appears to be a process of constant adjustment to this Personalness that is 'God.'

Let us consider why it is, if God be so accessible, that we are not more prone to open up our natures to that spiritual influence which is as real as the mother-love that surrounds our babyhood. Is it not that from the very nature

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of our finite situation, our immediate relationship to this world of human affairs, we are continually obliged to be aware of the crowding necessities of Life—to think in terms of dollars and cents? ‘The world is too much with us.’ We have no time to think of the unseen. We have not the time, we are sometimes indifferent, and back of it all, for most of us, is the fact that we have not really been convinced that conscious contact with the Invisible has any practical value for us. Few have been the pioneering spirits who have made the experiment of bringing Divine Wisdom to bear on the things of now and here. Comparatively few have dared, or even cared, even in their own minds, to relate God intimately with human affairs.

It is perfectly natural for the physical to be very present, and natural to build up a philosophy with the physical as the center, because in the hurry of civilized life, from babyhood to old age, it is necessary to be always alert to avoid destruction. This keeps us busy developing our five senses. It is a very different matter, therefore, to contemplate and investigate something which, to the five senses at least, is unknowable. If one does determine

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to investigate the spiritual, it is necessary to develop to some degree a spiritual sense, in order that sooner or later this elusive and yet constant Spirit which so thoroughly permeates Life may eventually become so familiar and accessible to us that we know its reality with the same surety that we know the reality of air, and in order that we may know some of its laws, and the causes and effects of their operation. This knowledge may be acquired, and the person who has acquired it has a plus to work with in Life, over his previous possession—a sixth sense, over his previous five.

To some who have not acquired this plus, it seems visionary and absurd. But perhaps those chemists who felt that they knew all the components part of pitchblende considered it an impossible, a visionary idea when they were first told of Madame Curie's discovery of radium. The fact remains that there are those who are certain that there is, interpenetrating the whole Universe, something akin to human intelligence, but increased so many times that it becomes Wisdom and Order, so far beyond human understanding that the greatest minds and the greatest seers have only touched the beach-ripples of its ocean.

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There are those who testify to the fact that just as certainly as there is radium in pitchblende, and just as surely as there are ether waves in the air about us, just so certainly is there this Spirit with which our minds may blend, and over which blend we may achieve results according to definite laws — results that sometimes appear like miracles. In the last analysis, is not this spiritual element the only Power there is? Is it not the Power which runs the sap through the trees in the spring, and causes it to run back into the roots in the fall; that enables one to walk, that swings the stars in space? There is apparently no limitation in it, but there is a distinct limitation in our understanding of it.

Not all efforts to reach the Invisible are successful, although every heartbeat may be God within ourselves. There are supplications that are mere gestures — empty formalities that bear no resemblance to prayer. Just as one may set up a telegraph apparatus or radio set, but fail to make the necessary adjustments of wires or aërial, so one may go through the forms and phrases of prayer, but fall short of communication. There are those who pray without benefit. There are also those who are

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unaware that their prayers have been answered, for human intelligence is limited, and men and women do not always receive the response they expect. It is necessary to see very far before one can be wise enough to indicate one's needs, or even one's desires, to the Creator of all things.

To bring one's self into contact with the Spirit of the Universe is the object and the aim of prayer. How one makes use of this means of communication is a matter of individual development. True prayer is not easy, but if there be an overruling Presence, the Creator and Sustainer of all things, it is as necessary for us to discover His true relationship to us and to our problems through experimentation, as it is for the scientist to experiment in the field of chemistry or physical science, in order to discover the laws of cause and effect that have to do with chemicals and living things. In the one case this is considered to be a natural, legitimate process, in the other the very word 'experimentation' jars upon our sensibilities. For is not prayer an act of faith? In reality, experimentation always implies faith. Out of faith and experimentation does all experience grow.

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The inner SELF or center of us which is individual and different appears to receive its promptings from the Invisible, just as truly as the apple seed is prompted to develop into an apple tree, or the bird is prompted to sing. A certain receptivity is all that is needed to bring the individual into consciousness of this Power. In proportion to our consciousness of the reality of Spirit will we be able to find self-expression in furthering the purposes of God. We have but to enter into a quiet place and, with the distractions of the world shut out, as a swimmer lets go to the buoyancy of the water and learns through experiment that he can be held up by it, to rest back on the wisdom and strength of the Infinite. We are led to believe that when we — our invisible selves — can find a way to make contact with the Invisible Spirit of the Universe, the qualities and powers of that Spirit may enter into us and be expressed in our living.

This contact established, the stream of Infinite Wisdom is allowed to flow through the human intelligence, enabling one, first of all, to see the details of Life in their true proportions. According to human intelligence there is a different value in lifting one's hand

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from that of eliminating depressing thoughts or fears or tendencies to action. But from a cosmic point of view may not all values prove to be equal? Let us obtain a cosmic view for a moment.

There is a star whose light has just reached the earth after traveling two thousand years at the rate of 186,000 miles per second — that is a very considerable distance away! The scientist would tell us that, no doubt, there is light just reaching that star from another star an equal distance away. Apparently we could carry this assumption on *ad infinitum*. In this Universe there is a speck, the earth; on that speck there is a speck which is the individual; in that individual's life there are other specks which he calls problems; and to those final specks he attributes different values. Is it certain that the Power of the Universe has to make any greater effort to adjust one of those specks than it does to adjust the other? Must any more influence be expended to bring the individual's mind into a state of calmness and confidence — a state of communion with God — than to bring the sap into the trees, or the North Star into its position in the heavens? If there be an interpenetrating Wisdom, why

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may it not act in any way that the individual may allow it? And may not the technique of the individual be measured by the degree in which he can, with intelligent confidence, let himself go to this Universal Spirit? This letting go, this confidence, this technique, is an art and not a science — an art that may be acquired in varying degree by every one.

When divine response is made to the prayer of the Christian or Hindu, the auto-suggestion of the psychologist, or the confidence of the intuitive business man; when the solution of a problem is suggested in the morning after sleep that follows a direct appeal to Infinite Wisdom; or a spirit is renewed, or released, or set at peace — when through these or other channels the investigator receives a response, and comes to depend upon the 'law' working, as any other unvarying but more familiar law always works, he has discovered for himself that the Invisible is a reality. Prayer will then be recognized by him to be one of the facts connected with human experience as real as breathing and as natural as sleep. Familiarity and practice will bring about an ever-increasing consciousness of the presence and will of God.

If there be an aim to human striving which

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extends above and beyond the elemental instincts, of which, in fact, these are a part; if there be a Creative Spirit in and back of the Universe, this Spirit and Man's must become harmonious before the Divine plan can be realized.

If we can be confident that deep in the center of every man is a core which is, in essence, good — the Self, the Divine Spark, the living Spirit, at one with the Universal Spirit when normal and in tune; and that this Self has the power resident within it, the divinity, to override circumstance and environment — if we can look back and see the points of new departure in our journey, learning from experience as the lower animals do not, then we must see ourselves as responsible for the building of our character or personality, the creating of 'self by self.' ¹ If we are not helpless victims of our own past, if we may learn to turn to our advantage the vicissitudes of Life, then may we not look forward to a time when nothing can have dominion over us?

¹ Bergson: *Mind and Energy*.

CHAPTER X

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ACTUALLY to believe in the immortality of the individual personality is an experience so uplifting that it throws into a new perspective all the relations of Life. If we see our lives as destined for eternity — this world but an incident, a day's march, a bridge — happenings, situations, problems, take on a different meaning. Readjusting our center of gravity, we provision ourselves with reference to the nature and length of our journey; we do not settle down too permanently on our way.

We find ourselves handling our lives easily and happily because we are not altogether dependent upon our worldly environment, that environment which is at the best so uncertain. Moral courage is synonymous with faith in the basic principles of the Universe, and those lives that are based upon eternal qualities ultimately take on the nature of the Eternal.

It is quite possible to have this faith without any knowledge of scientific discoveries. We contend, however, that such knowledge may be

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but another avenue to faith. The scientist in reporting on natural phenomena reveals increasing simplicity and homogeneity of laws. A possible interpretation for the ultimate simplicity which seems to be indicated is that there is one Divine Power ordering the Universe.

It remains for the human spirit, in conscious contact with this spiritual Reality, to develop as organic life has developed, by overcoming circumstance and environment in accordance with the law of survival. The very belief in survival after death — the hope of immortality — is but a token of that spiritual struggle for self-perpetuation which, lower down the scale of development, is represented by sex-expression — the means of perpetuation of the race.

Time and space are necessary conceptions of the human mind as applied to human life and material things, but in the light of Eternity not only are time and space eliminated, but fear and sin and death. Feeling the actual presence of Spirit, and blending with it, brings us unexpectedly into a safety zone where nothing can harm us. If the Spirit goes on and on beyond this life of threescore years and ten,

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the body is a negligible part of our Self — a shell, a temporary habitation for the time of our journeying across the eventful Bridge of Life.

Every normal human being is a unit of highly sensitized life — and is not Life in itself God? If so, every individual life is a God-energy, some expressing more fully than others the divinity that is in them. Every age has had its prophets, and every religion has had its rise in the inspiration and enthusiasm of an individual human spirit. Sometimes contact between the soul and God is so complete that not only are the spiritual eyes opened, but the spiritual ears are unstopped, and the Divine Voice speaks with authority and power. Many are the recorded incidents of history bearing testimony to this experience. Saul of Tarsus blinded by his vision, the Maid of Orleans listening to her 'voices,' George Fox following the 'Inner Light,' were all of them in the current that flows between God and Man.

It is time to ask ourselves the question, 'What am I as an individual, apart from all other individuals, doing with the bit of Truth I have glimpsed in my search after the Infinite?' Am I making of it a real and vital

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part of my everyday living? To be free and fearless in my human relations, I need to have faith in the Divine Order of the Universe, so that I may rest back with confidence on the laws that govern it, which are responsible for my everyday experiences, and the actions and reactions of my human nature. I must have faith, not only in the future, but in the past, with all its tragedies, and the present, with all its problems. I must believe that in every combination of circumstance I can find something helpful and constructive — that nothing is too difficult to be overcome.

I have made contact with the Source of Life and found it to be Life, Law, Love — the Godhead, if you will. Whatever term enables one to hold fast to the vision he has caught is the one for him to cling to. I am now living from a new center, seeing things in their right proportions as they fall into new relations to each other and myself. Let us see what this does for me.

Inasmuch as my environment calls for constant activity, inasmuch as I must act in order to keep alive, and inasmuch as I must make social adjustments, I bring Infinite Wisdom to bear upon my finite situation, thereby solving

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my problems much more easily than before, at the same time allowing my vision to sweep wide enough to bring the incidents of time and space into the right perspective in the picture, so that any temporary disturbing of the waters in my little corner of Eternity does not trouble me. Mountains are seen to be molehills, the hurry and worry and strain of Life are reduced to a minimum, for I know what matters and what does not, and am at rest. Although there is still conflict, it is no longer a disintegrating conflict, because seeing Life as a whole I understand the significance of each broken fragment. Knowing the Planner, I trust the Plan. Making the Creator's will my own, I literally desire whatever it may be.

The invisible Life of the Universe having been allowed to flow into my life, I am learning to hold still at the center — to become poised. I observe Nature, and seeing how slowly and calmly she does what she sets out to accomplish, I make the discovery that I can regulate my own life as the life of the Universe is regulated, in accordance with definitely known laws. I learn that order and system are at the heart of things, and wherever there is confusion, disorder, or aimlessness, there is dis-

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organization of some kind, a lack of harmony and union with the Power that is. The nervously disorganized person is restless, distraught, out of sorts with everything and everybody; the mentally disorganized are without aim and coördination.

Therefore I set in order my own life.

The realization comes to me that I am being lived — not doing the living, any more than the apple tree outside my window is doing the growing; that the Spirit of the Universe is being expressed through me — is leading, guiding, urging, pressing me forward. Resting back on this assurance, I go out into Life and note the operation of spiritual law in and through myself, knowing that the more conscious I am of the source of my power, the more powerful I shall become; the more distinctly I hear the Divine Voice, the more wisely shall I walk.

And behold! I find that there is a certain quality of wisdom that has nothing to do with knowledge, which is inspirational in its influence, to which I have access, sometimes in very unexpected ways. I discover that when God and Man consciously unite, miracles happen; that when I attain a certain degree of balance and poise, from which vantage-point

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I gain a universal outlook and a cosmic consciousness, I am in a mysterious current and allied with Power that is invisible.

The Divinity which was in Jesus Christ gave Him such power that He was able to say, 'I have overcome the world' (or, as it may be translated from the Greek, 'the Universe'). Glory shone about Him, a radiance and mystery surrounded Him. Quickened as He was by full God-consciousness, His influence has come down the ages like an everlasting light. So also, in proportion to our capacity, may ourselves and our lives be transformed by the Divinity within.

When Rome was at the height of her luxury and power, and triumphal processions passed through her streets, a messenger was wont to whisper in the ear of the laurel-crowned hero of the hour, 'Remember, you are a man,' lest perchance he should forget that he was human. May it not be that we of to-day are in great need of a voice whispering, 'Remember, you are divine'?

Our Universe is still composed of universal elements that speak of time and space, and yet the simplest of us knows through his own experience that there is a mysterious SOME-

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THING ELSE more important and more enduring than them all, without which we could not live.

The alert listening for a 'still, small voice' in the heart of Man outweighing all arguments; the calm, simple facing of one's self and God in the quiet; the going out to live peacefully and happily because we know that we are the expression of the Great Spirit of the Ages, and that all is well — this constitutes that God-consciousness that brings order out of chaos, and sets human feet on the high places leading to Divinity.

In helping to raise the level of Life, and so expressing the deepest needs of our souls, we find our way back to the Source of our being. Shall finite merge into Infinite Spirit and our individual personalities end there? Not if the most precious thing evolution has accomplished be of any value — the individual Soul, or Mind, of Man — that self-conscious, God-conscious entity which has been the end and aim of this great process.

Contact with God, the Great Thinker; co-operation with Him, the Great Creator; and finally identification with Him, the Spirit of Life — these are the conditions that make

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possible the lasting satisfaction of Man's soul,
the living of God's life for us now and here.

Above the clashing of creeds and the warring
of nations, outbalancing the differences that
are bred of the human desire to find a pathway
to the Almighty Source of this Universe and
of Man, comes the cry of the Buddhist, 'I will
beat the drums of the Immortal in the darkness
of this world.'

And deeper and more convincing than
scientific proofs or intellectual arguments, a
voice in the heart of Man whispers, 'Be still,
and know that I am God.'

THE END

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by

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